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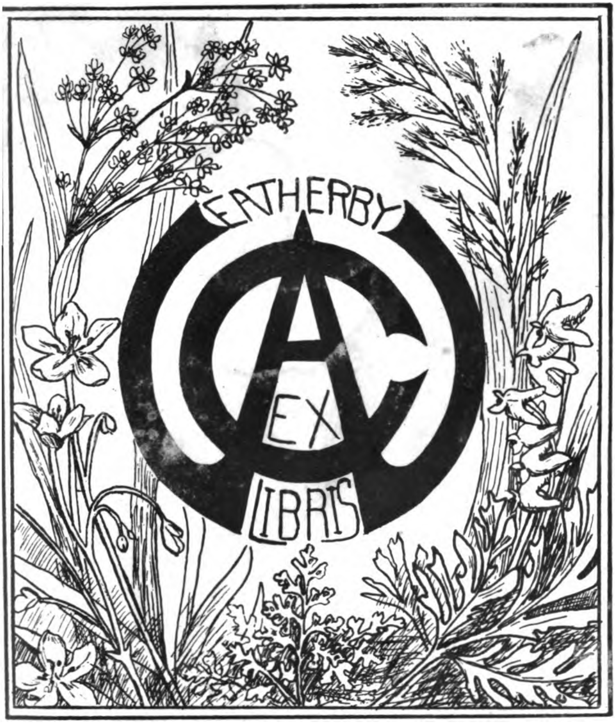

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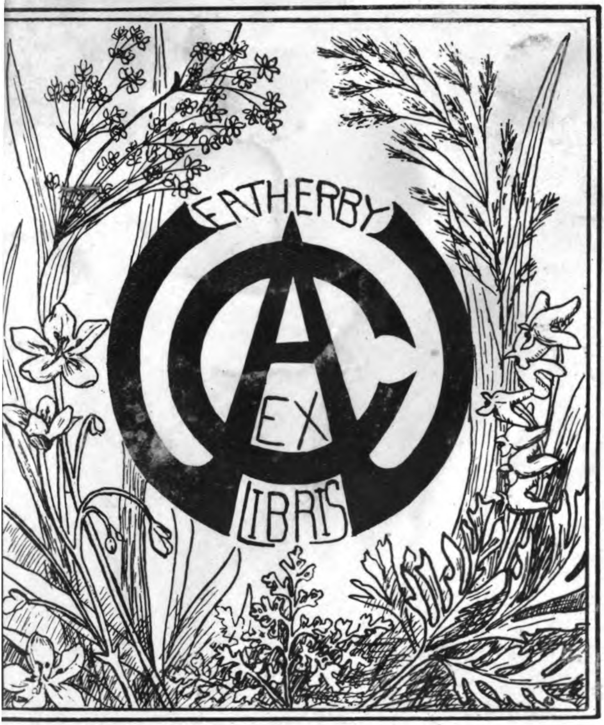

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THE

GENERA

OF

NORTH AMERICAN PLANTS,

AND

A CATALOGUE

OF THE

SPECIES,

TO THE YEAR 1817.

BY THOMAS NUTTALL, F. L. S.

FELLOW OF THE AMERICAN PHILOSOPHICAL SOCIETY,
AND OF THE ACADEMY OF NATURAL SCIENCES
OF PHILADELPHIA, &c.

VOLUME I.

PHILADELPHIA:
PRINTED FOR THE AUTHOR BY D. HEARTT.
1818.

District of Pennsylvania, to wit:

SEAL.

BE IT REMEMBERED, That on the third day of April, in the forty-second year of the Independence of the United States of America, A. D. 1818, Thomas Nuttall of the said district, has deposited in this office the title of a book, the right whereof he claims as author, in the words following, to wit:

> "The Genera of North American Plants, and a Catalogue of the Species to the year 1817. By Thomas Nuttall, F. L. S. fellow of the American Philosophical Society, and of the Academy of Natural Sciences of Philadelphia, &c."

In conformity to an act of the congress of the United States, intitled, "an act for the encouragement of learning, by securing the copies of maps, charts and books, to the authors and proprietors of such copies during the times therein mentioned,"—And also to the act, entitled "an act supplementary to an act, entitled "an act for the encouragement of learning, by securing the copies of maps, charts, and books, to the authors and proprietors of such copies during the times therein mentioned," and extending the benefits thereof to the arts of designing, engraving, and etching historical and other prints."

D. CALDWELL,
Clerk of the District of Pennsylvania.

TO HIS EXCELLENCY

JOSEPH CORREA DE SERRA,

FELLOW OF THE ROYAL SOCIETY, OF THE NATIONAL INSTITUTE OF FRANCE, &c., &c. AND MINISTER OF H. M. F. M. OF PORTUGAL, BRAZIL AND ALGARVES, TO THE UNITED STATES.

SIR,

The active interest which you have ever taken in the promotion of Natural Science, both in Europe and America, and your desire to elevate it to the rank of Philosophy, demands the gratitude of all its votaries, and inspires the feeble acknowledgments of your humble servant, the

AUTHOR.

PREFACE.

A desire to advance the science of Botany by any additional remarks and facts which might be in my possession, connected with an endeavour to instruct the ignorant, in this engaging science, are the motives which have induced the author to the prosecution of a laborious but gratifying task.

How much he has drawn from every popular source of information and thus advanced the merit of this little publication by the labours of others almost every page can testify.

The tacit evidence of Botanists to the accuracy of the prevailing definitions of genera and species, afford, as it were, an almost inviolable sanction to the labours of their authors, and appear to stamp with temerity every attempt at subversion. The limits of genera, however, since the times of Linnæus, reverting in a measure to their former simplicity, have now been greatly reduced, and more particularly so, since Botany, assuming a philosophical character, lays chaim to a classification by natural affinities. In this interesting and now prevailing view of the subject, a reduction of heterogenous materials to their natural types, has led the way to the construction of genera better according with the plan of nature.

One of the strongest, and perhaps most important objections urged against these improvements is the confusion which they are innocently the means of introducing into Botanical nomenclature, and indeed it must be acknowledged that the concussion of revolution whether in science or politics, even to fulfil the most important object, but little accords with our natural desire of harmony. And yet the same love of revolution might also have been urged with equal force against the great Linnæus, who in the zenith of his fame, but seldom spared the labours of his predecessors or contemporaries when they stood in the way of his darling system.

But we are at length inclined to believe, that the last and most perfect of systems, perfect because the uncontaminated gift of Nature, is about to be conferred upon and confirmed by the Botanical world. The great plan of natural affinities, sublime and extensive, eludes the arrogance of solitary individuals, and requires the concert of every Botanist and the exploration of every country towards its completion. Can we deny the perception of a prevailing affinity throughout the vegetable kingdom, and carp at the anomalous character of a few individuals? But even here the science begins to triumph, when we perceive that the anomalies diminish by the accession of objects.

* * * *

Whatever might have been my impression in favour of the system of arrangement by affinities, the convenience and prévalence of the artificial system of Linnæus, still almost exclusively taught throughout the United States, rendered some deference to public opinion due from the author of a treatise like the present, addressed merely to those who read the English language.

A considerable portion of new matter is also introduced, which ought perhaps rather to have been addressed to the world through the medium of the universal language of natural science, yet in conformity to the principal intention of the work, and in compliance with the public to whom it is addressed, an uniform language appeared necessary.

It will readily be perceived that a Synopsis of the Genera is what is chiefly intended by the present publication. And to assist the student more fully in the knowledge of genera, the essential character has sometimes been extended, after the manner of the celebrated Sprengel's recent Introduction to the Study of Botany. I have also considered it of importance to give a sketch of the habit or mode of vegetation assumed by the generic group in imitation of Jussieu's Genera Plantarum, from which important assistance on this subject has been perpetually derived throughout the work.

A view of the Geographical distribution of each genus is also added, not always perhaps sufficiently accurate for the existing state of the science, and the rapid progress of modern discovery.

A brief Catalogue of the species is offered, which may be considered as supplementary to the recent and extensive Flora of North America by Frederick Pursh. Occasional remarks are added, and new species also proposed and introduced, the result of personal collections and observations made from the year 1809 to the present time, throughout most of the states and territories composing the Union.

To the names of species or genera proposed by the author, will be found an asterisk (*) prefixed. To a very few obscure species is added the following mark. (+) *v. v.* Occasionally added, signifies that such plant had been seen alive by the author. And *v. s.* In a dried state.

Anxious to restrain the limits of this publication within the bounds of a portable manual for the student, and to confine myself as much as possible within the sphere of actual observation, the lower orders of Cryptogamia, now becoming a partial and particular study, have been omitted, and the rather as they have been minutely attended to by Z. Collins, Esq. and the late Dr. Muhlenberg in his Flora Lancastriensis, which will shortly be published.

Philadelphia,
May 27th, 1818.

Class I.—MONANDRIA.

Order 1.—Monogynia.

1. CANNA. ***Linnæus.*** **(Indian-shot, Flowering Reed.)**

Calix double; *exterior* short, trifid, persistent; *interior* (corolla. *Lin.*) 6-parted; 5 of the divisions erect, the 6th reflected. *Staminiferous filament* (nectary *L.*) petaloid, 2-lobed, the superior lobe bearing the anther. *Style* also resembling a petal, ensiform, growing to the tube of the inner petaloid calyx. *Capsule* muricate, 3-celled, many-seeded; *seeds* globular.

Habitus. Flowers produced in loose terminal leafy panicles.

Species in North America. 1. *C. angustifolia*? (doubtful.) 2. *flaccida*. In Carolina and Georgia.

Observation. A genus of the order *Scitamineæ* of Linnæus, the *Cannæ* of *Jussieu*, with splendid flowers, existing chiefly within the tropics. Most of the species known have been found in the two continents of America. The divisions of the inner or petaloid calix vary in form and magnitude; in the *Canna flaccida* of Carolina and Georgia the 6 segments are all reflected,—the 3 exterior lanceolate,—the 2 inner obovate, and undulated, the 6th or innermost lamina largest, expanding circularly, undulated, and nearly round.

2. THALIA. ***Lin.***

Calix double; *exterior* small 3-leaved; *interior* deeply 5-parted (5-petalled, *Persoon*) the 2 interior divisions usually smaller. *Anther* simple, ovate, attached to its proper filament. *Style* short, deflected from the anther. *Stigma* rin-

gent and perforate. *Capsule* 1-celled, 1 or 2 seeded.

HABITUS. Flowers produced in a scattered flexuose panicle, which is either terminal or radical, singly, or by pairs in spathaceous 2-valved bractes.

SPECIES. 1. *T? dealbata*, in South Corolina and Georgia (scarce.)

OBSERVATION. With all that has been done in arranging the *Scitamineæ* by the celebrated Mr. Roscoe, there still appears to prevail some confusion in this order, which perhaps their various individual structure has been a principal means of retaining. The present plant exhibits several anomalies, considered as a genuine species of *Thalia*. Jussieu and Persoon, describe the *Thalia* of *Linnæus* as having a deeply divided petaloid calix, or 5-petalled corolla. The *T. dealbata*, and the *T. cannæformis*, 2 of the 3 known species, have a 6-parted petaloid calix. Jussieu also describes this genus as producing a drupe with a 2-seeded nut, or rarely (by abortion?) 1-seeded. Persoon likewise speaks of this genus as having a drupe with a 1-celled nut. Mr. Roscoe describes the *Thalia* with a 2-celled capsule; according to Mr. Elliott[†] the present species produces a globose 1-celled capsule? or flexible shelled nut, if such a phrase can be admitted.

3. SALICORNIA. *L.* (Glass-wort.)

***Calix* 3 or 4-sided, somewhat ventricose, entire. *Corolla* 0. *Stamina* 1 or 2. *Style* bifid; *stigmata* 2; *seed* 1, covered by the inflated calix.**

HABITUS. Stem herbaceous or suffruticose, generally destitute of leaves; branching, branches opposite, round, and articulations bidentate above; terminal branches flower-bearing; flosculi minute and sessile, growing in threes. (The habit of this genus is similar to that of the *Gnetum*, a tree of India.)

SPECIES. 1. *S. herbacea.* 2. *virginica?* 3. *ambigua.* Near the sea-coast.—Sometimes burnt for soda, and also preserved in vinegar as an aliment.

OBS. Mr. Elliott observed 2 stamens in the *S. herbacea* and the *S. ambigua*, which corroborates the remarks of Jussieu made in Europe. Desfontaines in his *Flora At-*

[†] See his "Sketch of the Botany of South Carolina and Georgia," p. 2.

lantica, p. 2. observes also that there are 1 or 2 stamens in this genus.

4. HIPPURIS. *L.* (Mare's-tail.)

Calix obsolete, entire, above the seed. *Corolla* 0. *Style* received in a groove of the anther! (stamen seated upon the style?) *Stigma* simple. *Seed* 1.

HABITUS. Stem cylindric, simple; leaves verticillate, entire; flowers around the axill.

SPECIES. 1. *H. vulgaris?* but the leaves are mostly by sixes in the European plant, not by eights (in fresh water ponds and ditches; rare) The *H. maritima* of Sweden and Finland grows on the sea-coast.

OBS. The Hippuris appears to be the simplest phænogamous plant in nature; and stands without any distinct affinities to other genera.

Order 2.—DIGYNIA.

5. CALLITRICHE. *L.* (Water-star.)

Calix inferior, 2-leaved. *Corolla* 0. *Seeds* 4, naked, compressed.

Leaves opposite, flowers axillary, (in *C. verna* monoicous.)

SPECIES. 1. *C. verna*. 2. *autumnalis?* The *C. verna* is remarkably polymorphous, the leaves vary from the places where they grow; sometimes it produces 2 stamens, and in some instances the flowers are hermaphrodite. The leaves of the calix are described by Desfontaines as being concave, and lunate, with the filament as long as the calyx; in the American plant, (*C. heterophilla* of Pursh,) the stem is compressed, and bifistulous, for floating; the lower branches with narrower and often emarginated leaves, producing only male or female flowers, the central branches with retuse, spathulate oval, 3-nerved leaves, bearing those which are hermaphrodite, with the stamens much exserted.

6. CORISPERMUM. *L.* (Tick-seed.)

Calix 2-parted. *Corolla* 0. *Seed* 1, plano-convex, oval, and naked, with an acute circular margin.

Flowers axillary, solitary, sessile, commencing near the summit of the branches, upper flowers monandrous, lower ones, sometimes with 2, 3, 4 or 5 stamens!

Species. 1. *C. Hyssopifolium.*' *β *Americanum*, spikes approximating, axillary and terminal, squarrose; leaves linear, narrow, and nervose, with a subulate mucronulate point.

On the sandy alluvions of the Missouri; apparently propagated down the river Platte, as it ceases to be found above the confluence of that river. ⊙. July *v. v.*

Obs. The spontaneous plant, generally smooth, under culture somewhat tomentose, the pubescence, through a lens, stipitate, multifid; stem striate, herbaceous, calycine squamæ rhomboid-ovate, acuminate, gradually shorter; hypogynous scales chaffy, minute, eroded.

7. BLITUM. *L.* (Strawberry-spinage.)

Calix **3-parted.** ***Corolla*** **0.** ***Seed*** **1, covered by the calix, which enlarges and generally becomes a berry.**

Flowers and berries in capitate clusters; the capituli resembling strawberries, and are both terminal and axillary.

Species. 1. *B. capitatum.* A doubtful native. 2.* *Chenopodioides?* Leaves almost hastate-triangular, somewhat dentate, at either end attenuate; glomeruli all axillary, leafy; seeds distinct, punctate, not berried.

Hab. On arid soils near the banks of the Missouri. ⊙.

Obs. Stem erect, virgate; seeds naked, imbricated, surrounded by a few linear leaves longer than the seed; proper calix, apparently none, style 1, deeply bifid. *Seed* coated, covered with impressed punctures, oboval, slightly margined, beneath the outer envelope dark brown, a little rugose, emarginate below. *Corculum* curved round the perisperm, parallel with the margin of the seed; *perisperm* partly farinaceous and partly corneous.

CLASS II.—DIANDRIA.

Order I.—MONOGYNIA.

A. *Corolla inferior.*

† *Fruit a drupe or nut.*

8. OLEA. ***L.*** **(Olive.)**

Calix small, 4-toothed; tube of the *corolla* short, border 4-cleft, lamina more or less ovate. Lobes of the *stigma* emarginate. *Drupe* 2-seeded; one of the seeds usually abortive.†

Leaves evergreen, very rarely alternate: flowers racemose or paniculate, axillary or terminal, in *O. fragrans* the flowers simply aggregate.

SPECIES. 1. *O. Americana.* Flowers dioicous. Grows near the sea-coast. Fruit acerb.

9. CHIONANTHUS. ***L.*** **(Fringe-tree.)**

Calix 4-parted. *Corolla* deeply 4-parted, lamina long and linear. *Anthers* nearly sessile on the tube. *Drupe* 1-seeded. *Nut* striated.

Small trees with simple leaves, flowers resembling those of the *Ornus*, panicled, or more rarely corymbose; panicles sometimes bracteate, axillary and terminal, trifid, or trichotomous, sometimes triandrous. Fruit and flowers pendulous.

SPECIES. 1. *C. Virginica.* Most abundant near the sea-coast, where it arrives at a considerable magnitude. Near Port Elizabeth, New-Jersey, my friend, Z. Collins, esq. saw a tree of the *Chionanthus* near 30 feet high. *Persoon* remarks that the corolla of this species varies from 4, 5, to 6 cleft, and with 4 stamens!

---

† Nut bilocular, one of the cells often obliterated. GÆRTNER.

10. ORNUS. *Persoon.* (Flowering-ash.)

Calix 4-parted. *Corolla* 4-parted; petals long and ligulate. *Filaments* long. *Nut* winged.

A tree with opposite, and unequally pinnated leaves, (like the *Ash* to which it is nearly related.) Flowers in terminal panicles.

Species. 1 *O. Americana,* (scarce) not very distinct from the *Ornus Europæa,* (or *Fraxinus ornus* of Lin.)

†† *Fruit a capsule. Corolla monopetalous, irregular.*

11. VERONICA. *L.* (Speedwell.)

Calix 4-parted. *Corolla* rotate, 4-lobed, unequal, the lower segment narrower. *Capsule* 2-celled, obcordate; *seeds* few.

Herbaceous, or more rarely suffruticose; many species have opposite and sometimes ternate leaves, rarely entire, mostly crenate, toothed or deeply serrate, also pinnatifid or rarely digitately divided; flowers in spikes or corymbose racemes, which are either axillary or terminal; a smaller number of species have alternate leaves, and solitary axillary flowers; very rarely the calix is 5-parted. In the *V. rotundifolia* of Peru the flowers are sometimes 5-cleft, with 4 stamina; in the *V. nudicaulis* of the European Alps the capsule is ovate and entire!

A genus chiefly confined to Europe, many of the species are entirely alpine, others have become naturalized throughout that continent, in Northern Asia, and now profusely spread over North America. A single anomalous species is described as growing in Peru. The *V. decussata* of Linnæus, discovered by Commerson at the straits of Magellan, a shrub with *evergreen* leaves called *Hebe* by the discoverer, and described by Jussieu with an ovate capsule, can scarcely be conceived as a legitimate species of Veronica. 5 other species, of this genus were discovered in New-Zealand by Forster.

Species. 1. *V. officinalis.* 2. * *reniformis.* 3. *serpillifolia.* 4. *Beccabunga.* 5. *Annagallis.* 6. *scutellata.*—(Peduncles 1-flowered—) 7. *agrestis.* 8. *arvensis.* 9. *peregrina.* As yet there has not been a single genuine species of this genus discovered in N. America that is not also common to Europe and Northern Asia, if we except the *V. reniformis* of Pursh, which if distinct, may probably also exist in Siberia. Of the 9 species here enumerated, Nos. 1, 3, 7, 8, and

9, are merely naturalized, the rest natives, common to Europe and America.

12. * **LEPTANDRA.** (*Veronica Virginica, L.*)

Calix 5-parted, segments accuminate. *Corolla* tubular-campanulate, border 4-lobed, a little ringent, unequal, the lower lamina narrower. *Stamina* and at length the *pistillum* much exserted; *filaments* below, and tube of the corolla pubescent. *Capsule* ovate, acuminate, 2-celled, many-seeded, opening at the summit?

Natural Order.—ANTIRRHINEÆ.

Root perennial; stem angular, (sometimes pentangular) tall. Leaves verticillate in 4s, 5s, and 6s, never simply opposite or ternate. Flowers in very long and dense spikes; spikes aggregate, nearly terminal. *Calix* 5-parted. *Flowers* tubular, somewhat campanulate, pubescent within; border 4-lobed, the upper lobe somewhat laterally deflected towards the filaments of the stamina, the three lower lobes connivent, the central division narrower. *Stamina* exserted, regarding the upper lobe of the corolla, the lower part of the filaments pubescent, at length divaricate; *anthers* cordate-oblong, 2-celled. *Style* at first shorter than the stamens, persistent on the fruit, and then exserted longer than the stamens; *stigma* somewhat capitate, flat, perfectly entire. *Capsule* ovate, acuminate, a little compressed at the summit, with 2 marginal nerves contrary to the dissepiment, valves with inflected margins contiguous to the seminal placenta, which occupies the place of a dissepiment, valves 2, only opening about half way down; *seeds* numerous, ovate?

From this examination it will be evident that the present plant does not appertain to the same order as *Veronica*, but arranges directly with the ANTIRRHINEÆ and immediately before the genus *Pæderota*, from which it is readily distinguished both by habit and character, not having a distinctly labiated corolla. In *Pæderota* also, the corolla is somewhat rotate, the upper lobe generally emarginate, the filaments shorter than the corolla, and the anthers converging as in many didynamous flowers.

SPECIES. 1. *L. virginica*, (common also to Japan, or more probably a distinct species of the same genus. A variety of this plant mentioned by Mr. Pursh, Vol. 1. p. 10. with purple flowers, may perhaps prove distinct. There is another species called *Veronica Sibirica*, inhabiting Dauria, in which the stamina and pistillum are double the length of the corolla.

13. MICRANTHEMUM. *Michaux.* GLOBIFERA. *Gmelin.*

Calix 4-parted. *Corolla* 4-parted, almost bilabiate; the upper lamina smaller than the rest. *Filaments* incurved, shorter than the corolla, (appendiculate at the base?) *Capsule* nearly globular, 1-celled, 2-valved, many-seeded. *Seeds* striate.

Small, subaquatic, herbaceous plants, with filiform creeping stems; very small, solitary, axillary flowers, alternately disposed; with opposite, entire and somewhat orbicular leaves, longitudinally nerved. (A North American genus.)

SPECIES. 1. *M. orbiculatum*. 2. **emarginatum*. Leaves larger, oval or obovate, somewhat emarginate, flowers sessile. ELLIOTT.

OBS. This genus has considerable affinity to *Centunculus*, but the capsule does not divide hemispherically, and it belongs to a distinct Natural Order.

14. GRATIOLA. *L.* (Hedge-hyssop.)

Calix 5-parted, often bi-bracteate at the base. *Corolla* tubulose, resupinate, and sub-bilabiate; the *upper* lip, 2-lobed or emarginate; the *lower* 3-cleft and equal. *Filaments* 4,—2 fertile, the other 2, for the most part, sterile. *Stigma* 2-lobed, or bi-labiate. *Capsule* ovate, 2-celled, 2-valved, many-seeded. *Dissepiment contrary to the valves.*

Hebaceous, leaves opposite; peduncles solitary, axillary, 1-flowered. Character drawn from *G. officinalis*. In *Monniera*, now a distinct genus, the corolla is nearly equal, and the dissepiment parallel with the valves. In some of the species, (as the *G. sphærocarpa* and the *G. aurea* of Mr. Elliott, the 2 barren filaments are wanting; and in the *G. megalocarpa* of E. as well as the *G.*

sphærocarpa, the capsule is nearly globular; moreover, the *G. acuminata* has 4 fertile stamens!

SPECIES. § 1. with 2 bractes at the base of the calix.—1. *G. virginica.* 2. *aurea.* 3. *pilosa.* 4. *sphærocarpa.*—§ 2. without bractes.—5. *quadridentata.* 6. *acuminata.* 7. *tetragona.* 8. *megalocarpa.*

OBS. Of 22 species of this genus now described, 8 are natives of the United States.—1 of Europe, nearly allied to the *G. aurea* and *G. virginica.*—1 in Peru.—2 in the West Indies, and 10 in India. A majority of the North American species are confined to the warmer states; so that the genus *Gratiola*, almost equally divided betwixt India and North America, originates apparently within the tropics, and in the latter continent extends chiefly to the 40th degree of north latitude.

15. LINDERNIA. *L.*

Calix 5-parted, nearly equal. _Corolla_ tubulose, bi-labiate; _upper_ lip short, emarginate; _lower_ trifid, unequal. _Filaments_ 4, the 2 longer forked, and sterile. _Stigma_ bilamellate. _Capsule_ 2-celled, 2-valved; seminiferous dissepiment parallel with the valves.

Herbaceous plants with opposite leaves, and generally solitary, axillary flowers, greatly resembling the preceding genus, to which it is very closely allied; though well distinguished by having 2 *of the filaments bifid* and for the *most part sterile*, except perhaps in the *L. Pyxidaria*, the Linnæan type of the genus, which is described as having the 2 inferior filaments terminated by a tooth or process passing beyond the anther which is almost laterally inserted (or more probably situated upon another shorter stipe.) The Lindernia is also distinguished from the preceding genus by its parallel dissepiment. There is indeed already a *L. dianthera*, discovered by Swartz in the West Indies; and Mr. Elliott remarks that there are only 2 anthers in the *L. dilatata* and *L. attenuata* of Muhlenburgh's Catalogue, and that in the latter species the infertile filaments are villous. Besides these, there is another species; viz. the *L. monticola* of the hills of New Hampshire.

OBS. The genus *Lindernia*, except the L. *Pyxidaria* of Europe, appears entirely confined to North America. The *L. Japonica* of Thunberg, described as having terminal racemes, cannot certainly appertain to this genus. The genus Lindernia extends from the mountains of New Hampshire to the West India islands.

16. CATALPA. *Jussieu.* **BIGNONIA** *Catalpa.* **LIN.** (Catalpa-tree.)

Calix 2-parted. *Corolla* campanulate, tube ventricose, border 4 lobed, unequal. *Stamina* 2, fertile, filaments 3, sterile. *Stigma* bilamellate. *Capsule* siliquæform, long, cylindric, 2-valved; *Dissepiment* opposite to the valves. *Seed* membranaceously margined and tufted at the extremities.

Trees with simple leaves, verticillate in threes; flowers paniculate.

SPECIES. 1. *C. cordifolia*, (said also to be a native of Japan.) Rarely to be met with decidedly indigenous in the United States, and appears to have been introduced by the *aborigines*; hence its name of "*Catawba*," derived from a tribe of Indians residing on the Catawba river. In most of the *habitats* of this tree given by the younger Michaux in his "*Arbres Forestiers*," which I have visited, if existing at all, it had evidently been introduced. I am informed, however, by Governor Harrison, of the indubitable existence of this tree in very considerable quantities in the forests of the Wabash, Illinois Territory, where its wood is even split for rails; still even here it is extremely local, and I have never once met with it either on the banks of the Ohio, the Missisippi, or the Missouri, rivers which I have ascended or descended thousands of miles. In the warmer states it does not appear to grow with any degree of vigour.

There is another species of this genus in the West India islands, viz. the *Bignonia longissima*, a tree producing very hard wood, which is not liable to be destroyed by worms or insects. Perhaps the same properties may be common also to the *C. cordifolia*.

17. ELYTRARIA. *Michaux.* **TUBIFLORA.** *Gmelin.*

Calix coriaceous, 4-parted; the anterior division cleft. *Corolla* 5-cleft; *lamina* nearly equal. Two of the filaments without anthers. *Stigmata* ligulate. *Capsule* oblong, 2-celled, 2-valved;

valves half-septiferous, or half of the dissepiment adhering to each valve after the opening of the capsule, and thence semibilocular; one of the most remarkable characters of the Natural Order *Acanthi* of Jussieu.

Stemless perennials, producing scapes entirely vested with subulate coriaceous and almost imbricate bractes; bearing flowers towards the summit; flowers imbricate, and bibracteolate, a little ringent. A genus nearly allied to *Justicia.*

SPECIES. 1. *E. Caroliniensis.* There are also 2 other species in India. In the *E. imbricata* the bracteal scales are 3-toothed.

18. JUSTICIA. *L.*

Calix 5-parted or 5-cleft, often with 3 bractes. Tube of the *Corolla* gibbous; border bilabiate; the *upper* lip emarginate, the *lower* trifid. *Filaments 2,* each with a single or double anther. *Stigma* 1. *Capsule* attenuated, below opening with an elastic spring from the summit to the base. *Dissepiment* contrary, growing from the centre of each valve. *Seeds* few, lenticular.

Herbaceous or shrubby, leaves rarely verticillate, and still more rarely alternate; a few have axillary spines; flowers solitary or spiked, axillary or terminal. The species in the United States have opposite leaves, with short spikes upon long, axillary, peduncles, and are subaquatic, usually along the margins of the larger rivers, or in ditches in their vicinity.

SPECIES. 1. *J. pedunculosa.* 2. *humilis.* 3. *brachiata* of PURSH. All the North American species produce 2 anthers upon each filament, each anther 1-celled; hence many species of this extensive genus were thrown into another called *Dianthera* by Linnæus and Jussieu. They are, however, at present united.

OBS. Not a species of this extensive genus exists in Europe; they are, in general, tropical plants, many of them splendid. Of 10[illegible] species 3 only are as yet discovered indigenous to the United States,—35 in India and its islands —8 in Arabia Felix—3 in China, of which one is also common to Arabia—1 in Japan—5 in Africa, 4 of them at the Cape of Good Hope and 1 at Sierra Leone—1 in New Holland—and 44 in the tropical regions of America, principally in the West-Indies, Carthagena, Cayenne, and Peru. Many of these latter species are highly ornamental. Thus again we perceive a tropical genus almost equally divided between India and America.

19. UTRICULARIA. *Lin.* (Bladder-wort.)

Calix 2-parted, the lower division often emarginate, rarely cleft. *Corolla* scarcely tubulose, irregularly bilabiate, *upper* lip erect, entire or emarginate, staminiferous; *lower* larger, entire. 3-lobed, or crenate; *palate* more or less cordate, rather prominent on the inner side, *calcarate* at the base. *Filaments* of the stamina incurved; *anthers* connate. *Stigma* bilamellate. *Capsule* globular, 1-celled, many-seeded (opening by a lateral foramen?) receptacle of the seed, central, unconnected.

An evanescent plant of ponds and stagnant waters, rooting, and rarely producing setaceous leaves; or loosely floating, producing leaves which resemble roots, alternate, demersed, and much divided; beset with numerous inflated vesicles; also with proper radical leaves, which are alternate, more rarely opposite or verticillate, entire, or dissected; flowers produced on a scape furnished with a few squamula or scale-like bractes, racemose, or more rarely inclined to be one flowered; the *U. minor* scarcely produces a spur.†

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† SPECIES, 1. *ceratophylla,* the largest North American species, producing inflated leaves at the base of the scape, divided and capillary branched at their extremities, 6 parted verticillate; racemes producing 6—10 flowers, lower lip of the corolla with 3 retuse lobes, the upper entire, spur compressed, deeply emarginate, half the length of the lower lip. Flowers yellow, larger than those of *U. vulgaris,* which they, however, in some measure, resemble. Calix persistent.

It begins to appear in the lower part of Delaware, near Lewistown, and continues to Florida, being more particularly abundant in the warmer states. Floating.

2. *fibrosa* of Walter and Elliott, the *U. fibrosa* of Pursh, appears to be some other species; so called from occasionally striking out fibres when growing near the margins of ponds; a circumstance at the same time common to several other spe-

20. PINGUICULA. *L.* **(Butter-wort.)**

Calix bilabiate, *upper* lip trifid, *lower* bifid. *Corolla* irregular, calcarate at the base, limb

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cies; described by Mr. E. as producing a scape 6-8 inches long, bearing 2 to 3 large yellow flowers. The upper lip large, rounded, and obscurely 3-lobed, the lower lip smaller, about the length of the spur, which is said to be subulate (or as some would perhaps say conic) and emarginate. From all which we may, I think, here perceive a plant not very widely distinct from the *U. vulgaris* of Pursh and others, considered as equally indigenous, like many other aquatics, to the two continents of Europe and North America.

3. *Longirostris,* of Mr. Le Conte. Floating; scapes 1, 2 (or 3) flowered, the spur a little longer than the lower lip, (somewhat compressed) ascending and emarginate. Flowers yellow, labiæ obscurely 3-lobed, scape 3 to 4 inches long. This species also approaches to the *U. vulgaris,* but is a much smaller plant, with the flowers rather large.

4. *purpurea.* Walter, *U. saccata* of Le Conte.

Scapes 1, 2, or 3 flowered; lower lip of the corolla 3-lobed, lateral lobes cucullate on the under side; palate large and prominent; nectary compressed, a little acuminated, closely appressed to the resupinate corolla and entirely covered by its reflected margins; upper lip nearly round.

Floating stem 2 or 3 feet long, utriculate leaves digitate, sessile, segments pinnatifid and setaceous; scapes axillary, 1 or 2 together. Flower about the size of *U. vulgaris,* violet-purple; calix persistent. Grows in the ponds upon the Blue-ridge, in the state of New-York, and on the Broad mountain, Pensylvania. In 1809 I collected it in a pond near to Lewistown, Sussex county, Delaware, from whence it appears to extend as far south as Carolina and Georgia.

5. *Gibba* floating.

6. *Bipartita.* Elliott. Taking root on the margins of ponds. Corolla nearly entire; spur short, scarcely half as long as the corolla, very obtuse. Lower division of the calix *bifid.*

7. *biflora.* La Marck. Floating; scape about 2-flowered, corolla entire, spur subulate, obtuse, as long as the lower lip. *Le Conte.*

Obs. *Vahl* describes the nectary as straight, nearly equalling the upper lip, and with setaceous leaves. South Carolina.

8. *Personata.* Le Conte.

Flowers small, in a long setaceous raceme (1 to 2 feet high, 4—10 flowered) furnished with small scaly bractes; upper lip of bilabiate, superior 3-lobed, inferior 2-lobed shorter; faux (or juncture of the labiæ) contracted. *Stamina* 2 very short. *Style* short. *Stigma* bilamellate covering the anthers. *Capsule* 1-

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the corolla emarginate, lower obtuse with an abrupt point; spur straight, subulate and acute, a little incurved, and about the length of the corolla; the root fibrous. South Carolina.

9. *Cornuta.* Taking root in the ground; scape rigid, 1 to 2 feet high, 2 to 3-flowered, flowers large, the lower lip 3 lobed, very wide; spur longer than the corolla, porrected, nearly vertical, subulate, and acute.

Abundant on the Table rock, at the Falls of Niagara, and throughout Canada and the Alleghany mountains to Virginia, in *calcareous soil.*

10. *setacea.* Michaux.

Scape minute, rooting, and without leaves, slenderly setaceous, distantly 2 to 3 flowered; flowers upon longish pedicells; spur rather long.

Mr. Le Conte says, scape many-flowered (4 to 7 on short peduncles, El.) upper lip of the corolla ovate, lower strongly 3-lobed; spur subulate, as long as the lower lip of the corolla.

Lower division of the calix slightly emarginate. El. This description does not appear to accord with Michaux's plant, and still appears to be nearer it than any other. It cannot possibly be the *U. subulata* of Pursh, and the synonym of Gronovius applies probably to the *U. setacea* of Mich.—Persoon adds, that the flowers of the *subulata* are white; a circumstance entirely improbable.

The whole of this genus appears in confusion, scarcely excepting the European part of it; and none of the smaller and ambiguous species which are now greatly multiplied, can be understood but by a monograph accompanied with accurate delineations.

Besides the above 10 species, there are 6 others growing within the tropical regions of America. A blue flowered species in Ceylon, with 2 others in India, one in China, doubtful apparently as to the genus, and 3 species in Europe. America has, then, 16 species out of 23; of which one, in Martinique, is said to produce large white flowers, and entire ovate leaves! The *U. unifolia* of Peru rather appears to belong to the family of the *Orchideæ*, having a single radical lanceolate leaf, a solitary flower, and a large cordate calix; it possesses, in short, all the habits of a *Cymbidium* or *Arethusa.*

celled, many-seeded; *receptacle* of the seed, central, unconnected.

HABITUS. Leaves radical, stellately disposed, thick, soft, and as it were greasy to the touch, composed of an almost diaphanous, distinctly cellular parenchymatous substance; scapes 1-flowered; flowers inverted. Nearly allied to the preceding genus.

SPECIES. 1. *P. elatior.* 2. *lutea.* 3. *pumila.* 4. *acutifolia.*

OBS. The American species have the corolla 5-cleft, with all the segments 2-lobed or emarginate; in the *P. lutea* the corolla is campanulate and yellow, with each of the lobes bidentate Of 11 species enumerated in this genus, the United States have 4, Peru 1, and the other 6 are confined to the alpine and colder morassy regions of Europe. The North American species grow nearly on a level with the ocean, in moist pine barrens.

LABIATÆ.

††† *Four naked seeds.*

21. LYCOPUS. *L.* (Water-horehound.)

Calix tubular 5-cleft (or 5-toothed, acute or acuminate). *Corolla* tubular, 4-lobed, nearly equal; the upper segment broader and emarginate. *Stamina* distant. *Seeds* 4, retuse.

Flowers small, axillary, crowded, verticillate and sessile, generally bibracteate; leaves toothed or sinuated. In the *L. Virginicus* the calix is 4-cleft and shorter than the seed; and there are the rudiments of 2 abortive stamens in the *L. vulgaris.*

SPECIES. 1. *L. vulgaris?* 2. *Virginicus.* 3. *pumilus.* 4. *obtusifolius.* 5. *exaltatus.* 6. *angustifolius.* 7. *sinuatus.* Are not several of these varieties? (With the exception of the *L. vulgaris* this genus is thus far entirely confined to the United States.)

22. CUNILA. *L.* (Mountain Dittany.)

Calix cylindrical, 10-striate, 5-toothed. *Corolla* ringent, with the upper lip erect, flat and emarginate. *Stamens* 2-sterile. The 2 fertile stamens with the style exserted nearly twice the length of the corolla. *Stigma* unequally bifid. *Seeds* 4.

Flowers sometimes axillary, mostly in terminal dichotomous corymbs. Leaves opposite, punctate. Bractes inconspicuous.

Species. 1. *C. mariana.* An American genus; growing chiefly in rocky, and, to the south, in mountainous situations. The second species of this genus, the *C. capitata* of Vahl, more probably belongs to *Ziziphora.* The common generic remark, of the calix being villous at the faux, is scarcely worth repeating, so many different genera having the same character; for example, the *Hedeoma, Ziziphora, Thymus,* and *Calamintha.*

23. HEDEOMA. *Persoon.* (Wild Pennyroyal.)

Calix bilabiate, gibbous at the base, upper lip 3-toothed, lower 2; dentures all subulate. *Corolla* ringent. *Stamina* 2-sterile. The 2 fertile stamens about the length of the corolla.

Small herbaceous plants possessing the scent of the *Mentha Pulegium.* Leaves opposite; flowers verticillate, bracteate; calix internally ciliate-villous at the base of the calycine indentions. (An American genus, with the exception of the *H. thymoides* of Montpelier.)[†]

[†] Species. 1. *H. glabra.* Perennial, smooth; stem surculose; radical leaves nearly oval, stem leaves oblong-linear, obtuse, all entire and without veins; flowers upon longish peduncles, bibracteate at the base, towards the upper part of the stem mostly verticillate in 3s.

Obs. Stem six inches to a foot high, acutely angular, branching from below; leaves nearly obtuse, conspicuously beset with diaphanous glands, entirely smooth, without veins, and closely sessile. Flowers rather large, violet purple, somewhat campanulate and ringent; infertile stamens very short; calyx subcylindric oblong, internally ciliate at the faux.

Hab. Principally upon the banks of the St. Lawrence and the upper lakes; at the falls of Niagara: on the Ohio and in Tennessee;—*always* on calcareous rocks.

2. *Pulegioides.* Pubescent; leaves oblong-lanceolate, serrate, veined; verticilli many-flowered; flowers smaller than the calix. From Canada to Carolina. ⊙

3. * *hirta.* Dwarf, and branching near the base, pubescent; leaves linear sub-lanceolate, acutish at both extremities, entire,

24. MONARDA. *L.* (Mountain-balm.)

Calix 5-toothed, cylindric, striate. *Corolla* ringent, with a long cylindric tube; *upper* lip linear, nearly straight and entire, involving the filaments; *lower lip* reflected, broader, 3-lobed, the middle lobe longer.

Flowers axillary-verticillate, or terminal and capitate, with involucrate bractes; colour scarlet, crimson, violet, or white, and in two species yellowish and spotted, with highly coloured bractes. (A North American genus)

Species. 1. *M. didyma.* 2 *Kalmiana.* 3. *rugosa.* 4. *clinopodia.* 5. *gracilis.* 6. *purpurea.* 7. *oblongata.* 8. *mollis.* 9. *fistulosa.* 10. *punctata.* 11. *ciliata.* 12. *hirsuta.*

25. SALVIA. *L.* (Sage.)

Calix subcampanulate, striate, and 2-lipped, above 3-toothed, below bifid. *Corolla,* tube widening at the faux, limb bilabiate, the *upper* lip arched and emarginate, the *lower* 3-lobed, the lateral segments narrower, the intermediate one larger and nearly round (sometimes crenate). The 2 fertile filaments transversely pedicellate.

Herbs or suffruticose shrubs; flowers with 1 to 2 bractes or axillary leaves, often spiked. Filament of the stamina variously stipitate, sometimes in the middle, at other times above or below it, terminated at only one, or more commonly at both ends, by 1-celled anthers, one of which is always infertile; there are also considerable variations in the lip of the corolla.

Species 1. *S. azurea.* 2. *coccinea.* 3? * *trichostemoides.* (Missouri). 4. *urticifolia.* 5. *lyrata.* 6. *Claytoni.* 7. *obovata.*

Obs. A very numerous genus, and widely disseminated over the world; flowers large and of very brilliant colours

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and veined; verticilli many-flowered, flowers minute, shorter than the calix; bractes ciliate, calix strigose. ⊙ *H. hispida,* Pursh, 2. p. 414.

On the open alluvions of the Missouri. ⊙. June. From 4 to 6 inches high, nearly allied to the *H. Pulegioides.*

in the warm regions of India, of Peru, Mexico, and the West-Indies. About 47 species are natives of North and South America.

26. COLLINSONIA. *L.* (Knot-root, Horse-weed.)

Calix bilabiate, above 3-toothed, below bifid. *Corolla* much longer than the calix, somewhat funnel-formed, unequally 5-lobed; the *lower* lobe longer, lacerately fimbriate (or fringed). *Stamina* 2, sometimes 4. *Seeds* 4, 3 of them mostly abortive.

Leaves large. Flowers in terminal panicles, yellowish or inclining to violet, with the 2 fertile stamina extended beyond the corolla.

SPECIES. 1. *C. Canadensis.* 2. *tuberosa.* 3. *scabra.* 4. *ovalis.* 5. *anisata.* 6. *punctata.* E. 7. *verticillata.*

The *C. punctata* has 2 barren filaments, and the *C. anisata* is *tetrandrous.* (A North American genus.) In this genus the stamens are observed alternately to approach the style.

B. *Corolla superior.*

†††† *Flowers complete.*

27. CIRCÆA. *L.* (Enchanter's Nightshade.)

Calix short, 2-parted. *Petals* 2. *Stigma* emarginate. *Capsule* ovate, hispid, 2-celled, not opening; cells 1-seeded.

Herbs; with opposite leaves; flowers alternate, in terminal spikes.

SPECIES. 1. *C. lutetiana, β canadensis.* 2. *alpina?* This does not well agree with the European species.

††††† *Flowers incomplete.*

28. LEMNA. *L.* (Duck-weed.)

Calix of one entire leaf. *Stamens* alternately developed, seated upon the ovarium at its base; *style* cylindric, stigma funnel form. *Capsule* 2 to 4-seeded.

The Lemnas are minute aquatic plants, of an extremely simple structure, composed, at most, of 3 or 4 lenticular leaves, laterally adnate and proliferous, rarely flowering. Each leaf as a perfect plant, in aggregation, produces a single floating radicle, or, in some species, a small bundle of fibres.

SPECIES. 1. *minor*. 2. *gibba*. 3. *thermalis*, of BEAUVOIS. 4? *trisulca*. (The genus of this plant is doubtful.)

OBS. Like many other aquatic plants the Lemnas are common to almost every country and climate; they even vegetate in the warmest thermal springs.

CLASS III.—TRIANDRIA.

Order 1.—MONOGYNIA.

† *Flowers superior, complete.*

29. VALERIANA. *L.* (*Valerian.*)

Calix 0, or minutely marginal, at length evolved in a plumose pappus. *Corolla* monopetalous, tubular, somewhat funnel-form, calcarate or gibbous at the base, limb 5-cleft. *Seed* 1, usually crowned with the calycine pappus. (*Stamens* exserted 1, 2, 3, and 4.)

Flowers for the most part in terminal corymbs or panicles.

SPECIES. 1. *V. pauciflora.*†

30. FEDIA. *Gærtner.*

Calix 3 or 4 toothed. *Corolla* tubular, 5-cleft. *Capsule* crowned with the peristent calix, 3-celled; only one of the cells usually fertile.

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† Radical leaves entire, cordate crenate petiolate; stem-leaves pinnate, somewhat toothed; uppermost leaves trifoliate, oval, acute; panicle scattered, corymbuli few-flowered.

OBS. Stem 3 feet or more high, smooth, sulcate, simple and fistulous. Leaves smooth; foliola of the pinnate leaves 5—7, gradually enlarging, oval, acuminate; flowers rather long, (near an inch,) pale pink, triandrous, with a short spur or gibbosity near the base; bibracteate, border 5-parted, lamina oval, obtuse, stamens exserted; seed elliptic, flat, on either side marked with 3 longitudinal striæ near the centre; at length comose. This species appears to be nearly allied to *V. Phu*, but distinct; in *V Phu* the radical leaves are oblong, and generally entire, the stem-leaves pinnatifid, the pinnula lanceolate, and very entire; the laminæ of the corolla also are crenulate; and the stigmata 3. (There are many species of this genus in South America.)

Flowers in fastigiate panicles.
SPECIES. 1. *F. radiata.*

31. PHYLLACTIS. *Persoon.*

Flowers involucrate; *involucrum* of 1-leaf, sheathing. *Calix* consisting of a minute margin. *Corolla* trifid. *Seed* 1. (Style and stamina exserted.)

Stemless or cespitose plants with fusiform roots, entire leaves stellately disposed, and producing almost sessile flowers collected together in involucrate umbells.

SPECIES 1. *P?. *obovata.* Stemless, root fusiform; leaves radiating, linear-spathulate, obtuse, hirsutely-pilose. (Flowers not seen; time of appearing, October?).

HABITAT. On bare hills around the Arikaree village, on the banks of the Missouri. (I give this with hesitation, not having seen a perfect flower, merely a flower bud.)—There are 3 other species of this genus in Peru.

†† *Flowers superior, incomplete.*

32. TRIPTERELLA. *Michaux.* VÆGELIA. *Gmelin?*

Calix tubular and prismatic, with alated margins, and a venticose base; *limb* 6-cleft, the alternating segments or teeth internal, minute and horizontal, covering the stamina. *Corolla* 0. *Stigmas* 3, capitate. *Capsule* 3-sided, 3-celled, many-seeded. Stamina included within the tube.

Minute plants with simple stems, almost destitute of distinct leaves. Flowers in short bifid cymose spikes, distinct or crowded like a capitulum.

SPECIES. 1. *T. capitata.* Stem setaceous; leaves remote, amplexicaule, and subulate; flowers disposed in a crowded bifid cyme, as if capitulate, each flower furnished with a lanceolate acute bracte, angles of the calix without margins.

On the borders of sandy ponds in Carolina. (Also in Cayenne) Flowers from May to July. The segments of the tube yellowish, the rest of the flower whitish. ☉?

2. *Cærulea.* Stem setaceous; leaves minute, subulate; flowers disposed in a bifid spike or cyme, sometimes simply in pairs, or in still smaller plants solitary; coloured blue; the winged margins of the capsule partly cuneate, truncate at the summit.

Burmannia biflora. L. *Tripterella cærulea* of Muhlenberg's Catalogue, and Mr. Elliot's "Sketches of the Botany of South Carolina and Georgia," p. 43.

Obs. This genus appears to be scarcely distinct from *Burmannia*, but seems to differ in the defect of 3 of the stamens, and the situation of the capsule below the calix.

Near the margin of sandy ponds, from Florida to Virginia. (Scarce.) Flowering nearly the whole year.

33. IXIA. *L.*

Spatha 2-3 valved, ovate, short. *Corolla* 6-parted tubulose; tube somewhat slender, with the style and stamina straight; *border* nearly salver-shaped, divisions sub-elliptic, flat. *Stigma* almost filiform. (Filaments including the style; mostly connate.)

Species. 1. *I. cœlestina.* A very scarce plant, and of a doubtful genus; discovered in Florida by Mr. Bartram.

Obs. The whole of this genus, with the exception of the present species, the *I. Chinensis*, and the *I. Bulbocodium* of Europe, is peculiar to the Cape of Good Hope.

34. IRIS. (Flag, Flower de luce.)

Corolla 6-parted, large; three of the lamina erect; the other 3 reflected, with or without a crest or beard on the inner side, and bearing the stamina at their base. *Style* short; *stigmata* 3 petaloid, oblong, large, usually arched. *Stamina* incumbent, covered by the stigmata. *Capsule* 3-celled, 3-valved, many-seeded. *Seeds* flat, triangular; (in some species nearly round or spherical.)

Flowers terminal, solitary, or alternately disposed upon a scape; spatha 1 or more flowered; scape often compressed. Root a simple or double bulb; mostly an horizontal tuber. The genus *Iris* is remarkable for producing flat, ensiform or sword-shaped leaves with sheathing margins; several species, however, have linear and almost grassy foliage. The *I. tuberosa* has 4-sided leaves.

SPECIES. 1. *I. cristata.* 2. *haxagona.* 3. *versicolor.* 4. *cuprea.* 5. *tripetala.* 6 *verna?* Root tuberous, reddish; leaves radical, linear-ensiform, rigidly coriaceous, very acute, margined, dark green, somewhat spirally twisted at the base, about 6 inches long; young shoots and scapes sheathed with linear-lanceolate stipules of a pink red colour; scape 1-flowered, nearly radical; tube of the corolla triangular, (about 2 inches long); germ attenuated, triquetrous; laciniæ appearing articulated upon the tube; inner and outer divisions nearly equal, oblong-obovate, pale blue, the 3 exterior marked with an oblong orange-yellow maculate stripe, having a central, slightly villous, raised line; stigmata linear-oblong, deeply bifid. (This is certainly a distinct plant from the *I. verna* of *Pursh*; but agrees with *Michaux* except in having, in common with the generality of this genus, a tuberous, and not a simply fibrous root. This species is nearly allied to the *I. cristata*, but the flower is smaller, without the crest or beard, somewhat sweet-scented, and of finely contrasted colours. The root, like the *I. cristata,* leaves a burning sensation on the palate after mastication, a circumstance, however, common to several other species. 7. *sibirica.* 8. *prismatica.* 9. **lacustris;* flowers without a bearded crest; leaves short, ensiform; scape much shorter than the leaf, 1-flowered; petals nearly equal? attenuated on the tube; *capsule* turbinate, 3-sided, margined; seeds somewhat round, and smooth; roots tuberous.

OBS. Roots laterally produced to a considerable extent so as to form wide and dense tufts; leaves rarely more than 6 inches long, scapes generally 1-flowered and still shorter flower pale blue.

HABITAT. On the gravelly shores of the calcareous islands of lake Huron, near Michilimakinak. (I have seen no perfect specimens, and therefore recommend the examination of this plant to future botanists.) It appears to be allied to *I. cristata.*

Many species of this genus have been discovered at the Cape of Good-Hope, a few in Barbary, 1 or 2 species in China, and as many in Japan, the rest have been found in East Asia (Siberia,) Europe, and North America. Not a single species has yet been discovered in South America, or any other portion of the southern hemisphere, except the southern promontary of Africa. The species in the United States, with the exception of the *I. verna,* (as described by Mr. Pursh) have the tube of the corolla short, as in most of the European species, and nearly all have compressed, obtusely triangular seeds, and tuberous roots. Many of the African species, with bulbous roots, have the tube of the corolla remarkably long, seeds more or less round, approaching to spherical, and linear grassy leaves.

35. **DILATRIS.** *Persoon.* **LACHNANTHES.** *Elliott.* (Red-root.)

Calix superior, petaloid, externally hirsute, deeply 6-parted, nearly equal, erect, and persistent. *Stamina* erect, a little unequal. *Style* declining; *stigma* minutely trifid. *Capsule* round, 3-celled, few-seeded; (3-6 in each cell.)

Leaves considerably like those of the *Iris*; sheathing, on the stem sessile; flowers paniculate, corymbose, externally pubescent, internally coloured and petaloid, nearly equal, but the style somewhat declined and thus approaching to the genus *Wachendorfia*. The *D. Heritiera* of the United States, although a very distinct species from the other 4 described as natives of the Cape of Good Hope, can hardly be considered as constituting a distinct genus: it is true, that the stamens are more nearly equal than in the Cape species, but scarcely so, absolutely, with the presence of a declining style. As to the structure of the flowers, they are both merely furnished with a petaloid calyx, divided down to its base; the Cape species, at least *one* examined by Jussieu, had a hirsute capsule, crowned by the persistent calyx, of 3-cells, 3-valves, 3-seeds, the valves naked in the inside, or without a recepticular placenta, with a central 3-sided receptacle, the seeds flat, and peltate. In the *Heritiera*, there are as many as 6 or 7 seeds in each cell, and of a somewhat different form, being round and compressed. It appears, however, probable from the globose form of the capsule in *Dilatris*, that there must be a roundish seed, or seeds, as there is no succulent receptacle. The *Heritiera* has also a roundish, obsoletely triquetrous, capsule. Are there not two species confounded as the *D. Heritiera* in the United States?

36. **SISYRINCHIUM.** *L.* (Blue-eyed grass.)

Calix petaliod, tube short, border divided like 6-flat petals. *Stamina*, for the most part, united below. *Capsule* roundish, triquetrous,

pedicellate beyond the spathe; (laminæ in several species aristate.)

Root fibrous; stem compressed, ancipital, divided; flowers both terminal and axillary; spatha many-flowered, compressed-carinate. Flowers white, yellow, or blue.

Species. 1. *mucronatum*. 2. *anceps*. 3. *Bermudianum?*

Obs. Of 9 species now enumerated, 4 inhabit the tropical regions of America, (Peru, Guiana, and the West-Indies) having white and yellow flowers; 3 belong to the United States, producing blue flowers with aristate petals; 1 with yellow flowers to the Cape of Good Hope, and another of a doubtful genus, resembling *Ixia*, was discovered by Forster in New Zealand.

36. BOERHAAVIA. *L.*

Calix tubulose with an entire margin. *Corolla* monopetalous, campanulate, plaited. *Seed* 1, invested by the persistent calix, naked or tuberculate, 5-furrowed, obconic. (*Stamina* 1, 2, 3, 4, and 10.)

Stems herbaceous or shrubby, leaves opposite, one of the leaves often less than the other; flowers mostly umbellate; umbels slender, axillary, pedunculate, sometimes branching, involucrate; involucrum simple, or many-leaved; flowers also, in some species, disposed in corymbose panicles. (Jussieu says, that the seed is small, and *covered by the angular base of the calix*, and in this he is confirmed by the observations of Defontaines; but to ordinary observers the seed will be considered as inferior. The same remark also applies to the following genus, *Calymenia*.)

Species. 1. *erecta*. (South Carolina.) 2. *diffusa?*

Obs. This genus is chiefly confined to the tropical regions of America, there is also 1 species in Guinea (Africa), 1 in Spain, 1 common to India and China, and another in the Society islands of the Pacific.

37. CALYMENIA. *Persoon*. (Allionia. *Michaux*.)

Involucrum caliciform, 5-parted, persistent, enlarging, and then peltate-campanulate, 1 to 3 or 5-flowered. *Proper calix* none. *Corolla* sub-campanulate, plaited, 5-parted, laminæ

emarginate, tube persistent, calicine. *Stamina* exserted. *Seed* 1, coriaceously coated, obconic, with 5-furrows.

Annual or perennial; stem herbaceous, leaves opposite; flowers axillary and dichotomously paniculate, or corymbose, from 1 to 5 in a common expanding campanulate, or almost peltate involucrum, extremely evanescent, and generally small, 5-parted, laminæ deeply emarginate, the base persistent and calicine, investing the seed. Stamina 3, 4 and 5. Stigma capitate.—Nearly allied to the preceding genus, and also to *Mirabilis.*

SPECIES. 1. *nyctaginea.* MICH.

OBS. Entirely smooth; stem jointed, leaves broad cordate, acute; flowers for the most part corymbosely aggregate, and terminal, also axillary; in stems imperfectly developed, all axillary; involucrum 5-cleft, 3-5-flowered, (and as in all the other species, at length much larger than the fruit.)

Root large and tuberous, probably medicinal.—On the alluvions of the Missouri, common.

2. *Albida.* Walter. ⊙. 3. * *pilosa.* Stem nearly erect, hairy; leaves oval or lanceolate-oval, obtuse, entire; flowers sub-paniculate, axillary and terminal; involucrum about 3-flowered.

OBS. Leaves sometimes hairy; nearly allied to the *C. nyctaginea.* Flowers pale red, stamens exserted, root perennial.

HABITAT. Near the Missouri,—around the Arikaree village, &c.

Allionia ovata. Pursh, vol. i. p. 97. The *C. ovata* of Peru appears to be but 1-flowered.

4. *C. hirsuta.* Pursh, perhaps a variety of the above.

5. *C.* * *angustifolia.* Stem round, erect, smooth; involucrum and peduncle pubescent; leaves linear, sessile, rarely subdenticulate; flowers aggregate, paniculate, and axillary; involucrum mostly 3-flowered

OBS. Root perennial, tuberous as the preceding; leaves smooth; stem erect, a little branched above; seeds as in all the rest clavate, obconic, rather rugose, with 5 furrows. Flowers pale red. Stamens exserted. On hills near the confluence of Teeton river, Missouri, and from thence probably to the mountains.

C. angustifolia. T. Nuttall in Fraser's Catalogue. 1813.
C. linearis, Pursh, in Supplement. vol. ii. p. 728.

6. * *decumbens.* Stem round, decumbent, low; leaves en-

tire, narrow, sessile, and linear; peduncles all axillary, a little pubescent; involucrum 3-flowered.

OBS. Perhaps only a variety of the preceding; still it preserves the same habit under cultivation; the stems come up several from the same perennial root, always inclining to be decumbent, not above 6 inches high, the preceding 2 feet; flowers axillary, peduncles short; leaves rather thick, without veins, not more than 2 lines wide and 2 inches long, perfectly smooth and rather obtuse; flowers very small, pale red, and so evanescent as rarely to be seen open. Fruit and involucrum as in the other species. On high, bare, gravelly hills near Fort Mandan, on the Missouri. Flowers in June and July.

This genus, now containing about 13 species, is thus far confined to Peru, New Spain, and the United States, being entirely an American genus. There appears to be but one species of *Calymenia* in New Spain, the *C. aggregata*, having more than a single flower in the involucrum, while in the United States, in all the species it produces three or more flowers. The calicine, peltate involucrum, the deep emargination of the 5 divisions of the corolla, and the absence of the minute marginal calix, are apparently all the essential generic distinctions subsisting between the *Calymenia* and *Boerhaavia*.

††† *Flowers inferior.*

38. COMMELINA. *L.*

Calix 3-leaved. *Corolla* 3-petalled, mostly unequal. *Stamina* 6, sometimes all fertile, but for the most part 3 or 4 are sterile. *Stigma* simple. *Capsule* sub-globose, 3-celled, 3-valved, 2 of the cells 2-seeded, the third with its proper valve, often abortive.

Stem herbaceous, and often branching; leaves almost gramineous, alternating at the nodes of the stem, the sheath of the leaves long and entire, nearly cleft; branches sheathed at the base; peduncles axillary or terminal, one or many flowered; spatha cordate, persistent, closing and enveloping the flowers; rarely wanting.

SPECIES. 1. *communis.* 2. *erecta.* 3. *hirtella.* 4. *Virginica.*

OBS. The genus *Commelina*, with the exception of the species in the United States, and 2 others in Japan, is peculiar to the tropical regions of India and America: there is also a single species described as African, and another discovered by Loureiro in Cochinchina. The genus now consists of 23 species. Most of them produce blue flowers; the North American species of a bright azure, but extremely evanescent. It is said that the Japanese possess a method of extracting the colour from the flowers of the Commelina.

39. SYENA. *Willd.* MAYACA. *Aublet.*

Calix deeply 3-parted, acute, persistent. *Petals* 3, roundish. *Anthers* oblong, 2-celled. *Stigma* trifid. *Capsule* acuminated with the style, 1-celled, 3-valved.

A small sub-aquatic, repent herb, resembling moss; the leaves alternate, crowded, linear, subulate, (somewhat 3-nerved, AUBLET.); flowers solitary, axillary and remote, the peduncle bending downwards after flowering, (pedicell bibracteate, AUBL.) In the *Syena*, as it appears in the United States, the stem is bi-fistulous (for floating) as in the *Calitriche*, the leaves each with a single nerve; the peduncles without bractes, but furnished at the base with a single valved scariose spatha; filament and anther united, the latter shortly obovate, 2-celled, emitting the pollen by 2 terminal oblique pores; style simple; stigma entire, persistent; capsule oblong-ovate, 1-celled, 3-valved; seeds 9, attached by 3s to the centre of each valve, spherical, acute at one of the ends, longitudinally traversed by elevated scabrous lines, of a hard and brittle consistence, and a dark brown colour.

This is probably distinct from Aublet's plant. Existing as far to the North as Virginia.

40. LEPTANTHUS. *Michaux.*

Spätha 1 to 4-flowered. *Corolla,* tube long and slender; border 6-parted. *Stamina* seated upon the segments of the corolla. *Anthers* linear, or of 2 different forms, the other triangular. *Capsule* inclosed in the spatha, and invested with the marcesent tube of the corolla, 3-celled, many-seeded, opening at the angles; *dissepiment* contrary.

Aquatic herbs, nearly allied to the genus *Pontederia*, having alternate leaves with a sheathing base. Flowers spathulate, 1 or more in the same spatha, axillary in *L. gramineus;* in all the others, bursting as it were from the base of the petiole. Flowers extremely evanescent, in all the species white, except the *L. gramineus*, which appears to be scarcely of the same genus, all the others appertain to *Heteranthera*, and the *L. gramineus* is now called SCHOLLERA, being further generically distinguished by having a capsule of one cell.

SPECIES. 1. *ovalis*, MICH. (spatha 2 or 3-flowered? v. v.) *Heteranthera limosa* of BEAUVOIS. 2. *reniformis*, MICH. *H. acuta* of Beauvois. This appears to be the same plant with the *H. reniformis* of the Flora Peruviana.† 3. *gramineus;* (now SCHOLLERA *graminea.*) Found in almost all the rivers of the United States from the Delaware south, and in the Ohio, to the west.

41. STIPULICIDA. *Michaux.*

Calix 5-parted, persistent. *Corolla* 5-petalled, petals entire, and as long as the calix. *Style* short, stigmata 3. *Capsule* 1-celled, 3-valved. *Seeds* few, each attached to the receptacle by an umbilical filament.

A small perennial herb, with a leafless, dichotomous, articulated stem; the base of each branch subtended by 2 opposite, lacerated stipula. Flowers minute, terminal, almost sessile, growing from 3 to 6 together. Radical leaves minute, spathulate.

SPECIES. 1. *setacea.* Very nearly allied to the genus *Polycarpon.*

42. POLYCNEMUM. *L.*

Calix 3-leaved. *Petals* 5 caliciform. *Capsule* 1-seeded, membranaceous, not opening, covered by the calix. (Stamina 1, 2, 3, and 5.)

Stem herbaceous, branching, diffuse, leaves crowded, linear, subulate, or filiform, and carnose; flowers calicine, axillary or terminal; (growing chiefly in arid and saline wastes.)

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† The leaf buds of this species are large and involute, including an extraordinary quantity of embryon foliage, enveloped like the *Bracenia* in a gelatinous fluid. It is also extremely local; in Pennsylvania it is scarcely known beyond the vicinity of Philadelphia, and is not noticed by Mr. Elliot as existing in the Southern states.

SPECIES. 1. **Americanum*†. There are of this genus 5 other species, 4 in Siberia, the 5th near the Caspian sea.

43. XYRIS. *L.* (Yellow Flowering-Rush.)

Flowers in an ovate-cylindric capitulum.—*Calix* glumaceous, 3-valved, valves unequal, the outer coriaceous. *Corolla* 3-petalled, equal. *Stigma* trifid. *Capsule* 1-celled, 3-valved. *Seeds* very numerous, and minute.

Leaves all radical, gramineous, or like those of the Iris, linear, or ensiform-subulate, sometimes tortuose, intimately sheathing at their base; the vaginæ of the leaves often enveloped in a gelatinous fluid. Scapes simple, round, ancipital, or contorted, terminating in a dense spike or capitulum. Flowers closely imbricated; of very short duration, generally yellow, (in the *X. americana* of Guianne, blue, but the leaves triquetrous, and the outer glumes acute!) Petals retuse, often crenate. Outer glumes of the capitulum concave, rounded, and obtuse, frequently abortive below.

SPECIES. 1. *Indica*. 2. *Caroliniana* (*X. Jupicai.* MICH. *X. flexuosa* of Muhlenberg's Catalogue.) 3. *fimbriata*, Elliott. 4. *brevifolia*. 5. *juncea*.

OBS. Of this genus there are 2 species in India, 1 at the Cape of Good Hope, 1 in Peru, and another in Guianne (South America,) the rest in the United States, of which the *X. Indica* is common to India and North America as far as the 40th degree of north latitude.

†††† *Flowers glumaceous.*

44. KYLLINGIA. *L.*

Flowers distinct, disposed in a roundish, sessile, subimbricated spike, or umbellate, the

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† Perennial; stem cespitose, leaves opposite, connate, crowded, subulate, triquetrous, rather pungent; flowers triandrous? terminal.

On the arid hills of the Missouri.

OBS. This species greatly resembles the *P. arvense* of Europe, but is distinctly perennial; I have not, however, had the opportunity of examining good specimens, seeing it only in fruit.

spikelets constantly subimbricate.—*Calix* 2-valved, 1-flowered, the valves unequal. *Corolla* 2-valved, larger than the calix. *Seed* triquetrous. (*Stamina* 1, 2, and 3; *stigmas* 2, and 3.)

Flowers capitate, or umbellate-capitate, terminal; involucrum of the head or umbell 3, 4, or many-leaved; culm often triangular. (According to the observations of Mr. Elliott, in his Sketches of the Botany of South Carolina and Georgia, the *K. pumila* of Mich. has no calix, and the *K. maculata* of M. a calix of only 1 leaf.)

Species. 1. *monocephala.* 2. *pumila.* 3. *maculata.*

Obs. With the exception of the species indigenous to the United States, the genus *Kyllingia* is confined to the tropical regions of India and America.

45. MAPANIA. *Aublet.*

Flowers capitate, subtended by a large, 3-leaved involucrum.—*Calix* 0. *Corolla* 6-valved, valves toothed, and imbricated. *Stigmata* 3. *Seed* intimately enveloped by a chaffy 6 parted perisporium (or involucellum.)

Culm triquetrous, sheathed at the base with short squamose lanceolate leaves; flowers in a terminal involucrate capitulum, the involucrum consisting of 3 large white? leaves.

Species. 1. *sylvatica.* It is extremely doubtful whether this singular grass of Guianne has ever yet been found in the United States. Mr. Kinn, said to have been the discoverer by Mr. Pursh, on being questioned regarding it, by my friend Zaccheus Collins, Esq. produced the *Carex Fraseri* as the identical plant shown to Mr. P.; I have been, however, induced to insert it for future examination, as it may probably yet be discovered in some extremity of the Southern states.

46. DICHROMA. Persoon.

Spike capitate, involucrate, squamæ or glumaceous scales on all sides imbricated into sessile crowded spikelets, the lower scales empty. —*Corolla* 0. *Style* setaceous, bifid. *Seed* without setæ (or involucellate filaments,) somewhat

lenticular, rather rugose, terminated by the triangular persistent base of the style.

Culm obtusely triangular, sometimes nearly terete, sheathed by the carinate leaves at the base, terminating in a single involucrate capitulum: leaves of the involucrum rather large, discoloured at the base, for the most part white, (sometimes red!) seed (in *D. latifolia*) roundish-oval, scabrous and indurated, convex on both sides, margined, and crowned with a black, dilated, triangular tubercle.

Species. 1. *leucocephala*. 2. *latifolia*. A larger plant, but nearly allied to No. 1 Grows in Georgia, Florida, and also in North Carolina, near Wilmington. This species appears to be perennial, and the other not.—3. *ciliata*.

Obs. The *Dichroma* is so very nearly allied to *Scirpus*, as to be almost destitute of any important discriminative character; the form of the seed, and the lunate tubercle with which it is terminated, the absence of the setæ, and the sterility of the outer glumes, as Mr. Elliott very justly remarks, are all circumstances more or less frequent in the genus *Scirpus*. It is merely then by habit that we are at present to distinguish the *Dichroma*. (Peculiar to America.)

47. SCIRPUS. *L.* (Club-Rush.)

Calix **scales chaffy, imbricated on all sides in a spike.** ***Corolla*** **0.** ***Style*** **filiform, unbearded, deciduous.** ***Seed*** **1, naked, or surrounded with involucellate setæ or threads.**

Culm naked, round, or angular, with a solitary terminal spike, or with several spikes, subtended by an involucrum, and in some species furnished with a leafy culm.

Species. § 1. with one terminal spike.—1. *S aciculuris*. 2. *capillaceus*. 3. *trichodes*. 4. *simplex*. 5. *filiformis*. 6. *ovatus*. 7. *palustris* 8. *geniculatus* 9 *capitatus*. 10 *tuberculosus*. 11. *quadrangulatus*. 12. *equisetoides*.—§ 2. with several spikes, and without leaves.—13. *debilis*. 14 *Americanus*. 15. *mucronatus*. 16. *lacustris*. 17. *validus*.—§ 3. culm leafy at the base.—18. *minimus*. 19. *autumnalis*. 20. *ciliatifolius*. 21. *stenopyhllus*. 22. *coarctatus*. 23. *sulcatus*.—§ 4. culm leafy —24. *maritimus*. 25. *exaltatus*. 26. *nitens*. 27. *lineatus*. 28. *divaricatus*. 29. *polyphillus* 30. *Shænoides*.

This very numerous genus appears to be predominant in the warmer and northern parts of America, in India, and at the Cape of Good Hope, as well as Europe; a few species are found in Barbary, also in the warmer regions of Africa. There are apparently none in New-Holland and Northern Asia.

48. FIMBRISTYLIS. *Vahl.* SCIRPUS. *L.* (Club-Rush.)

Scales of the *calix* on all sides imbricated in a spike. *Corolla* 0. *Style* ciliate, deciduous, and bulbous at the base. (*Seed* generally destitute of involucellate filaments.)

SPECIES. 1. *F. puberulum.* 2. *castaneum.* 3. *cylindricum.* 4. *spadiceum.* All species of *Scirpus* of other authors, and might probably with propriety remain so; as independent of the very arbitrary and insufficient character of this genus, if such it can be called, there is not even the advantage of any peculiar habit, that should indicate the necessity of such a separation. The ciliation of the style appears to be the only discriminative character, a circumstance, which upon other occasions would scarcely be considered as a sufficient groundwork for a separate section.

49. RHYNCHOSPORA. *Vahl.* SCHŒNUS. *L.*

Scales of the *calix* collected into a spike, the inferior ones empty. *Corolla* 0. Base of the *style* persistent. Involucellate filaments at the base of the *seed.*

This genus is well distinguished from *Schœnus* by the persistent base of the style, often in the form of an acuminated conic tubercle, and in some instances the whole style remains, becoming enlarged and indurated as is remarkably conspicuous in the *R. longirostris.* It appears, also, that the involucellate filaments are always present.

SPECIES. 1. *R. alba.* 2. *rariflora.* 3. *plumosa.* 4. *cymosa.* 5. *longirostris.* 6. *distans.* 7. *punctata.* 8. *fascicularis.* 9. *glomerata.* 10. *capitellata.* 11. *inexpansa.* 12. *caduca.* 13. *sparsa.* 14. *ciliata.*

50. SCHŒNUS. *L.* and *Vahl.* (Bog-rush.)

Scales of the *calix* collected into a spike, the inferior ones empty. *Corolla* 0. *Style* deciduous.

In this genus, as it now stands, it appears that there are no involucellate filaments.

Species. 1. *S. setaceus.* 2. *hispidulus.* 3. *effusus.* This remarkable grass, discovered in the West India islands by Swartz, extends a considerable distance northward beyond Wilmington, (North Carolina) often almost exclusively occupying considerable ponds. The leaves are almost as sharply serrate as those of a *Bromelia*, and hence it is very properly called *saw-grass*. The genuine species of this genus are principally confined to Europe and northern Africa (Barbary). Of the *Rhynchospora* there are many species at the Cape of Good Hope as well as in North America and the West India islands; scarcely more than 1 or 2 distinct species in Europe, none in the East Indies, Australia, Northern Asia, and Northern Africa.

51. MARISCUS. *Vahl.*

Spikelets few-flowered, almost imbricately aggregated in roundish or subcylindric heads. —*Common calix* of the spikelets 2-valved, (3 to 6, or 8-flowered). Flowers 1-valved, subimbricate. *Style* trifid. *Seed* triquetrous.

Culm triquetrous, leafy at the base, terminating in an involucrate umbell; capitulum, ovate, roundish, or cylindric, composed of aggregated compressed or subcylindric spiculi, from 3 to 8-flowered, the spikelets generally squarrose or reflected when in fruit. The involucellate filaments appear to be wanting. This genus, confined to America, seems to be very nearly allied to *Cyperus*, differing principally in habit.

Species. 1. *M. retrofractus.* 2. *cylindricus.* 3. *echinatus.* 4. *umbellatus.*

52. CYPERUS. *Lin.* (Cyprus-grass.)

Spikelets compressed, distinct. *Calix* scales imbricated in two rows. *Corolla* 0. *Stigmata* mostly 3. *Seed* 1, naked. (Stamina 2, and 3.)

Culm usually triquetrous, rarely terete, terminating in an involucrate umbell; spikes many-flowered, distinct, fasciculate, and generally pedunculate. The lower calix scales are sometimes empty or sterile. The roots of some of the species possess an aromatic odour, (particularly the *C. longus.*) and a few others produce tubers at their extremities, said to be esculent. From the integuments of the *C. Papyrus* of Egypt the ancients first obtained a convenient substitute for skins, to write upon, since fabricated from other substances, but which all still retain the name of paper, derived from *Papyrus*.

SPECIES.—§ 1. culm terete.—1. *C. minimus?* This interesting and extremely small species, first found in Jamaica and Africa by Sloane and Thunberg, has recently been discovered by Dr. Isaac Cleaver, both in Pennsylvania and New-Jersy, not far from Philadelphia.—2. *articulatus*. (found also in Jamaica, Egypt and India.) —§ 2. culm triquetrous.—3. *fasciculatus*. 4. *poæformis*. 5. *kyllingæoides*. 6. *uncinatus*, of Pursh (a *Mariscus?*) 7. *autumnalis*. 8. *compressus*. 9. *brizæus*. 10. *vegetus*. 11. *formosus*. 12. *virens*. 23. *filiculmis*. 14. *mariscoides*. 15. *filicinus*. 16. *flavescens*. 17. *gracilis*. 18. *Hydra*. 19. *repens*. 20. *tuberosus*. 21. *tenuiflorus*. 22. *odoratus*. 23. *strigosus*. 24. *tetragonus*. 25. *flavicomus*. 26. *distans*. 27. *speciosus*. 28. *Enslenii*.

The genus Cyperus appears to be widely dispersed over the world, no countries, however, are so rich in this genus as the United States, the West India islands, and the continent of India; there are also 9 species in Barbary, most of them common to Europe. The *C. flavescens*, *C. virens* and the *C. fuscus*, are the only species in the north of Europe; of which, the first is also common to the United States. Northern Asia and Australia appear to afford no species of this genus, though there are many species at the Cape of Good Hope. Upon the whole, it appears that the principal habitat of the *Cyperus* is North America and India within the tropics. A considerable number of species are common to very distant regions.

53. DULICHIUM. *Richard*.

Spikes somewhat racemose, axillary. *Spikelets* linear-lanceolate, rather compressed. *Calicine* scales subulate, almost distichally sheathing. *Style* very long, bifid. *Involucellate* setæ long and scabrous. *Seed* acuminated by the base of the style.

Culm simple, round and leafy; leaves nearly equal, closely approximating, almost spirally divaricate, but generally spreading in 3 directions; the stipules (or *ochreæ*) cylindric, every where embracing the stem; spikelets disposed upon a sessile or pedunculate raceme arising from the sheathing stipules in the axills of the leaves; spikelets and glumes linear and subulate, erect or patulous, few-flowered, (6, or 10.)

This genus, though very peculiar in habit, has by some been considered a *Scirpus* (Michaux), by many a *Cyperus* (Willdenow), and Vahl has decribed it as a *Schænus;* it certainly approaches the genus *Cyperus*, but is distinguished from it by the presence of the germinal filaments, and its subulate glumes. In habit it very widely recedes from *Scirpus* and *Schænus*, and all the glumes, besides their very peculiar form and mode of aggregation, are uniformly fertile.

Species. 1. *D. spathaceum.* 2. *Canadense.* (This genus is peculiar to the United States.)

54. TRICHOPHORUM. *Persoon.*

Spikelets nearly ovate; Calix scales imbricated on all sides. Corolla 0. Germinal setæ (involucellum) capillary, mostly 6, in the ripening seed, growing out very long.

Culm triquetrous, leafy, terminated by a paniculate umbell; or naked, with a single spike; involucellum of the seed capillary and definitely parted, (setæ about 6) not woolly and indefinite as in *Eriophorum*, to which genus the *T. alpinum* and *T. Hudsonianum* have hitherto been referred. The *T. cyperinum* has a very near affinity to the genus *Scirpus*, where it was placed by Michaux, and from its great dissimilarity of habit with the *Eriophorum alpinum*, now referred to *Trichophorum* by Persoon, we are obliged to consider the present genus as very arbitrary and artificial. All the species of *Trichophorum*, naturally belong to the genus *Scirpus*, and there is no line of separation, except we are to consider the *elongation of the seminal filaments* or involucellum, as a solitary character, sufficient to constitute a genus; for the number of the setæ, 6, so carefully inserted in the generic character, is the prevailing number in the genus *Scirpus*. (Mr. Pursh adds setis 6-9.)

Species. 1. *T. cyperinum*. 2. *Hudsonianum*, (nearly allied to the *Eriophorum alpinum*—only 3 or 4 inches high, with a solitary spike.)

Considered as a genus, the most remarkable of its species is the *T. cyperinum*, confined to North America, but extending from Canada to Florida; the *T. Hudsonianum*, if merely a variety of the *T. alpinum*, is common to the sub-alpine regions of Europe, and North America.

55. ERIOPHORUM. (Cotton-grass.)

Scales of the *calix* chaffy, imbricated on all sides in a spike. *Corolla* 0. *Seed* surrounded

with a very long, dense, and woolly involucrum. *Seed* sub-ovate without angles.

Culm generally round and leafy; spikes terminal, solitary or aggregate. Stamina mostly 3, rarely 2.

Species. 1. *E. cespitosum.* 2. *polystachyum.* 3. *angustifolium.* 4. *virginicum.* A genus equally common to the sphagnous morasses of Europe and North America; there is, as yet, but one species, the *E. virginicum,* peculiar to the United States. From Persoon it does not appear that any other portions of the world afford a single species of this curious genus.

56. VAGINARIA. *Persoon.*

***Spike* ovate, *calycine* scales imbricated on all sides, acutely acuminated. *Corolla* 0. *Stigmata* 3. Involucellum of the seed formed of 3 chaffy awnless scales alternating with 3 slender setæ.**

Root creeping. *Culm* round, simple, without distinct leaves, distantly invested with obliquely truncated ochreæ or vaginæ (sheathes) having small subulate points; spike ovate, terminal, generally solitary, sometimes in threes. In habit this plant appears distinct from the genus *Fuirena,* to which, however, it is very closely allied. But the scales of the spike are not properly awned, only acutely acuminated; the scales of the perisporium are also said to be furnished with alternating filaments or setæ, and destitute of awns.

Species. 1. *V. Richardi.* (The only species known.—In Florida.)

57. FUIRENA. *L.*

***Spikelets* composed of mucronate scales imbricated on all sides. *Corolla* 0. *Seminal involucellum* broad, chaff-like, scales cordate, (stipitate) often awned. *Stigmata* 2 and 3. (*Seed* triangular.)**

Culm round and leafy, terminating in an umbellate panicle, or aggregation of spikelets. Calicine scales abruptly awned, the awn erect or patulous. Root in *F. squarrosa* resembling a concatenation of bulbs.

Species. 1. *F. squarrosa.* (Georgia and Carolina). Of this genus there are 2 other species in America within the tropics; one, the *F. umbellata*, is also common to India; the 4th species, *F. canescens*, is a native of Africa.

58. CENCHRUS. (Bur-grass.)

Involucrum laciniate, echinate, 3 to 4-flowered. *Calix* 2-valved, 2-flowered, 1 fertile the other sterile. *Style* bifid, (sometimes 2.)

Culm round, in some species branched; flowers in spikes or racemes; proper involucrum caliciform, spiny or hispid, sometimes roundish with a laciniate margin, in other species setiform, or more or less deeply divided.

SPECIES. 1. *C. echinatus*. 2. *tribuloides*.

Of this genus there is 1 species in India, but doubtful as a *Cenchrus*, 3 in Barbary, besides the *C. echinatus* equally indigenous to the United States; the *C. capitatus* of Barbary, exists also in France and Italy, and the *C. hordeiformis* is found also in Asia. There is another species in Babao, one of the Friendly islands; another in Montevideo in South America; 2 others at the Cape of Good Hope; and lastly, a *shrubby* species in the mountains of Armenia.

This genus is very nearly allied to *Pennisetum*.

59. LIMNETIS. *Richard.* TRACHYNOTIA. *Michaux.* SPARTINA. *Schreber.* (Marsh-grass.)

Flowers in unilateral spikes almost imbricated in 2 rows.—*Calix* 2-valved, carinate, and compressed; one of the valves much smaller than the other. *Corolla* 2-valved, awnless. *Styles* long, 1 or 2, *Perisporium* 0. *Seed* compressed.

Culm round, rarely hollow, often tall, (the *L. polystachya* from 3 to 10 feet high); leaves large and long; spikes in a simple appressed or expanding panicle, long, and many-flowered; valves of the calix very unequal, the larger valve acutely carinate; the carina almost aculeate or sharply ciliate. Seed compressed, oblong.

Notwithstanding the great disparity of habit, this genus is very nearly allied to the *Dactylis*, at least to the *D. glomerata*, which occurs sometimes 1-flowered.

SPECIES. 1. *L. juncea*. 2. *cynosuroides*. 3. *polystachya*. 4. *glabra*. This last species grows up the Missouri as far as the great Northern Bend, around Fort Mandan. The genus *Limnetis*, with the exception of the *L. pungens* of

France and England, is confined to the United States, and principally to the marshes of the sea-coast.

60. NARDUS. *L.* (Mat-grass.)

Calix 1-flowered, 1-valved. *Corolla* 1-valved, included within the calix. *Stigma* 1. (Flowers spiked, alternate, and sessile.)

SPECIES. 1. *N. stricta.* (On open hills near the banks of the Missouri.) This genus, with the exception of the *N. ciliaris*, of India, is confined to Europe.

61. MIEGIA. *Persoon.* ARUNDINARIA. *Michaux.* (Cane.)

Flowers polygamous, paniculate.—*Calix* 2-valved, many-flowered, short and unequal. *Corolla* 2-valved, unequal, the larger valve acuminate. *Style* very short, trifid, and plumose. *Perisporium* (nectary) 3-parted, laciniæ lanceolate acute, as long as the germ; present in both the fertile and infertile flowers. *Seed* naked, large, acuminated with the persistent base of the style.

Culm gigantic, perennial. Flowers paniculate; spikelets distichous, 7 to 10-flowered.—Very nearly allied to the genus *Bambos*, as particularly described by Jussieu under the name of *Nastus*, from which it principally differs in having 3 instead of 6 stamina, and a bifid in place of a trifid style; their separation is thus merely artificial. The *Nastus* has also a 2 to 4-parted perisporium, and spikelets with flosculi which are alternately abortive.

SPECIES. 1. *M. macrosperma.* Culm 3 to 15 feet high. 2. *gigantea?* Perhaps only a variety of the former. Culm 30 to 35 and sometimes 40 feet high. This species is supposed to flower but once in 20 or 25 years: the *A. macrosperma*, flowers much oftener.—The *A. gigantea* grows in most abundance on the alluvions of the Mississippi, where it presents the most impenetrable brakes. The external varnished epidermis of the cane is found to be a siliceous deposition.

62. ORYZOPSIS. *Michaux.*

Calix 1-flowered, 2-valved, valves loose, oboval about the length of the corolla, awnless. *Co-*

rolla **coriaceous, subcylindric-ovate, 2-valved, surrounded at the base with a line of pubescence, the exterior valve awned at the summit. *Perisporium* 2-parted, linear.**

Culm nearly leafless. Flowers rather large, in a small racemose panicle; leaves almost rigidly erect, flat, rough, somewhat pungent at the point, and on the lower part of the culm very short. Corolla glume a little hairy. Michaux adds that it has the habitus of *Oryza*.

Species. 1. *O. asperifolia*. The only species hitherto known, and confined to the northern mountains of Canada and the United States. It appears to be considerably allied to the genus *Milium*, but is well distinguished from it by the very different form of the valves of the calyx, and the single style. Mr. Pursh remarks his having found it on the Broad Mountains of Pennsylvania, and says, that the grain it produces is large, and affords a fine and abundant farina, deserving the attention of agriculturists.

63. * ERIOCOMA.† (Silk-grass.)

Calix 2-valved, 1-flowered; valves gibbous and coarctate above, longer than the corolla, both 3-nerved and cuspidate. *Corolla* 2-valved, roundish; valves coriaceous, vested with a silky wool, the outer valve terminated by a short triquetrous deciduous awn. *Anthers* bearded. *Seed* large, somewhat spherical.

Flowers dichotomously paniculate, peduncles flexuose, capillary, and clavulate. Leaves very long, involute and subulate, nodes of the culm distant, entirely sheathed.

Stipa membranacea. Pursh, vol. ii. in Supplement. p. 728.

1. *Cuspidata*, C.

Description. Root perennial; culm 2 to 3 feet high, simple; panicle spreading, dichotomous, flowers by pairs, peduncles capillary flexuose, clavulate at the summit. *Leaves* very long, filiform and convolute, a little asperate on the margin, (often more than a foot in length); vagina half a foot, entirely sheathing the stem and the panicle before evolution; ligula entire, conspicuous. *Calix* 2-valved, 1-flowered, valves membranaceous, about twice the length of the corolla, ventricose and gibbous, above the corolla contracted; both 3-nerved, the lateral nerves only about one third the length of the glume, the central nerve ending in a cusp or short awn margined by the glume at its base, nerves a little pubescent. *Corolla* 2-valved, short, nearly oval, in fruit almost spherical, valves coriaceous, vested with an exserted silky villus, extending beyond the corolla, the dorsal valve terminated by a triquetrous pungent deciduous awn scarcely the length of the calix, at first perfectly erect, afterwards a little bent; the inner valve entirely enclosed by the outer and without awn. *Stamina* 3, scarcely exserted beyond the valves of the corolla; *anthers* small, brown, bifid at both extremities, above terminated by small pubescent tufts. *Style* 1. *Stigmas* 2, short, hirsutely villous. *Ovarium* sheathed by a 3-leaved *perisporium* (or nectary). *Seed* nearly spherical.

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† From εριον, *wool*, and κομη, *a head of hair*. A grass producing a fastigiate tuft of silky hair, upon the glume of the corolla.

This genus is very nearly allied to *Oryzopsis*, but at the same time sufficiently distinct both in habit and character; having a culm with remarkable long sheathing and almost filiform subulate leaves, a dichotomous spreading panicle, a ventricose, coarctate, awned calix twice the length of the corolla, which last is furnished with a deciduous awn, and a long silky villus.

HABITAT. On the grassy plains of the Missouri, from the Arikaree village to the Northern Andes? Flowers in June and July.

Order 2.—DIGYNIA.

† *Calix 1-flowered, flowers scattered.*

64. MUHLENBERGIA. *Schreber.* DILEPYRUM. *Michaux.*

Calix very minute, truncated, 2-valved, unequal. *Corolla* 2-valved, hairy at the base, exterior valve terminating in a slender awn. (*Style* 1?)

Culm slender, leafy, terminating in a compounded racemose appressed panicle. *Calix* persistent, as in *Agrostis*, but extremely minute; like an obtuse unequally bifid scale in the *M. diffusa;* in the *M. erecta* one of the valves is rather long and acute, according to the observations of Mr. Elliott. The dorsal glume of the corolla is terminated by a long and straight awn; the *style* appears to be single at the base, but bifid above. This grass has much less the habit of *Agrostis* than the following genus, and certainly no affinity to *Leersia*.

SPECIES. 1. *M. diffusa.* A very common grass in the western, as well as most of the eastern states; round Lexington in Kentucky it grows in such abundance as almost to exclude every other grass, and affords a tolerable pasturage. 2. *erecta.* Not quite so common as the preceding.

65. TRICHODIUM. *Michaux.*

Calix 2-valved, valves nearly equal, acute; carina a little hispid. *Corolla* shorter than the calix, 1-valved, awnless. *Stigmata* almost sessile, rather hirsute.

Flowers in capillary trichotomous panicles, mostly in loose terminal fascicles.—Very nearly allied to the genus *Agrostis* with which it almost agrees in habit and character, differing, however, essentially in the glume of the corolla consisting of but a single valve. The carina of the calix described as spinulose by Persoon and Richard, is entirely a microscopic character, and even then can scarcely be called more than a very short hispid ciliation, which in *T. laxiflorum* more distinctly invests the rachis, being very sensibly asperate.

SPECIES. 1. *T. laxiflorum.* 2. *decumbens.* 3. *elatum.* This last species, probably appertaining to some other genus, is not recognized by Mr. Elliott under any other name than *Agrostis dispar*, with the same characters as given by Michaux, adding that he had never seen it.

Thus far the *Trichodium* is an American genus, not having been found indigenous in any other country. Like several species of *Agrostis*, the *Trichodium*, particularly the *T. decumbens*, has been greatly recommended to foreign agriculturists, more, however, apparently from sinister motives than any sensible conviction of its positive utility. Empiricism apart, its cultivation may perhaps at some future period be considered as important in the northern states: it is scarcely to be supposed that it could ever be so far acclimated in any part of Europe, and particularly in Great Britain, as to supercede the important varieties of the *Agrostis stolonifera*, and particularly that which has received the name of Fiorin-grass, which, however, it greatly resembles.

66. LEERSIA. *Swartz.* (Rice-grass.)

Calix 0. *Corolla* 2-valved, closed: valves compressed, boat-shaped, without awns. (Stamens 1, 2, 3, and 6.)

Flowers in appressed or spreading panicles, alternate and nearly sessile; receptacle of the glume concave and somewhat margined; glumes of the corolla apparently growing together after flowering. Leaves more or less scabrous; in the *L. Virginica* the channels betwixt the striæ of the leaves are thickly set with short hooked pricles, extremely acute and tenaceous, but most conspicuous upon the sheathes. This genus is very considerably allied to *Oryza;* it does not even altogether differ in the number of stamens, there being in Jamaica an hexandrous species of *Leersia,* there is also a bifid perisporium (or nectary) in this genus as well as in *Oryza,* their inflorescence and glumes are of the same remarkable character; but the *Oryza* is furnished with a short chaffy acute calix, not, however, one third the length of the coriaceous glumes, and is described as being furnished with an awn, though none cultivated in America ever produce it, and some rice also which I have seen from India considered as spontaneous was equally destitute of awns. It is probable, as Loureiro imagines, that the awned rice is a distinct species. In Tournefort's Institutes there is a figure of a panicle of rice with awns as long almost as a *Stipa.*

SPECIES. 1. *L. Virginica.* 2. *lenticularis.* 3. *oryzoides.* Besides these 3 species there are 2 others in Jamaica, and another in New Holland so nearly allied to the *O. hexandra,* that Mr. Brown scarcely conceives them distinct. The valves of the *O. lenticularis* are said to possess a degree of irritability, and retain small insects; it is more probably the singular construction of the corolla which produces this phenomenon; the insect venturing too far is retained as in a trap by the proboscis, and the hooked ciliatures of the valves, assist in ensnaring the intruder.

67. MILIUM. *L.* (Millet-grass.)

Calix 2-valved, 1-flowered, tumid. *Corolla* 2-valved, much shorter than the calix, with or without an awn. *Stigmas* plumose or villous.

Flowers paniculate (or spiked.) This genus is scarcely distinct from *Agrostis;* if it possess any distinguishing character it is the form and proportion of the calix, being tumid and almost ventricose, nearly equal, and considerably, sometimes, much larger than the corolla glumes; that there can be any genuine species of *Milium* producing spikes is extremely doubtful, yet 4 and now 5 species with this anomalous habit are enumerated. One species, the *M. nigricans*, is used as an article of diet in Peru.

SPECIES. 1. *M. Amphicarpon.* The only genuine species of this genus appear confined to Europe, those of the West Indies producing spikes can have no distinct relation to the genus *Milium* so nearly allied to *Agrostis.*

68. AGROSTIS. *L.* (Bent-grass.)

Calix **2-valved, 1-flowered, valves acute.** ***Corolla*** **2-valved.** ***Stigmata*** **longitudinally hispid or plumose.**

Flowers paniculate, spreading, with or without an awn, small. Corolla glumes smaller, equal to or exceeding the calix, in many species there are 2 minute hairy tufts near the base of the inner valve. The *A. Bromoides*, *A. arundinacea*, *A. Calamagrostis*, and *A. Mexicana*, with several single flowered species of Arundo ought with propriety to be restored to the genus CALAMAGROSTIS of Roth and Withering, a name, at least significant, to all who are acquainted with the species which it embraces, and much less exceptionable than many others which have been employed in Natural Science.

SPECIES. § 1. awned.—1. *A. Spica venti* (introduced). 2. *tenuiflora.* 3. *pauciflora.* 4. *stricta* 5. *canina* (introduced.) 6. *sericea.* (*Stipa sericea*, Mich.) 7. *trichopodes.* E. 8. *arachnoides*, E. (nearly related to the genus *Trichodium*).—§ 2. without awns.—9. *decumbens.* 10. *vulgaris.* 11. *aspera* 12. *alba.* 13. *dispar.* 14. *juncea.* 15. *indica.* 16. *clandestina* 17. *lateriflora.* 18. * *brevifolia.*† 19. *glauca.* If

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† Culm solid and compressed, somewhat cespitosely branching at the base, erect; leaves narrow subulate and erect, much shorter than the culm: panicle composed of alternate appressed and interrupted racemes; calix equal, shortly acuminate, much shorter than the corolla, valves of the corolla glume nearly equal, somewhat terete, coloured, the dorsal glume shortly mucronate.

Nearly allied to the *A. indica*, but the stem is not terete, but solid and ancipital.

OBS. Branches deeply cleft, leaves 2 to 3 inches long, culm compounded, about a foot high, calix chaffy, about half the these may all be considered as distinct, the United States produce half as many species of this genus as all the rest of the world besides, there being only 40 enumerated by Persoon. In India there are 6 species, of which 2 produce spikes like *Paspalum* or *Digitaria*, and another species with the same anomalous habit in the isle of St. Helena; there is 1 species in Japan; 1 in Senegal; 1 in Teneriffe; 1 at the Cape of Good Hope; 3 in Arabia; 1 in New Zealand; 4 in the West India islands; and all the rest in Europe; of which, several of the southern species are equally common to Barbary. Not one species from South America, Northern Asia, or New Holland.

This genus affords to the agriculturist some of the most important objects of cultivation both for pasturage and artificial meadows, among these the *A. stolonifera* with its numerous varieties is considered as the most useful.

69. CINNA. *L.*

Calix 2-valved, compressed, nearly equal. *Corolla* linear, compressed, shortly stipitate, naked at the base; dorsal valve including the inner, with a small awn near the summit. *Stamen* 1; style 1. *Seed* somewhat oblique.

Panicle large, reed-like, branches crowded, waving; flowers compressed, approximating so as almost to appear imbricated, smooth, with conspicuous scariose margins, leaves broad.

The *Cinna* differs greatly in habit from *Agrostis* as well as character; its habit is that of *Arundo*, and the base of the corolla, which is shortly stipitate, is destitute of the minute pubescent tufts which characterize the *Agrostis*. The awn of the corolla is also extremely small.

70. CALAMAGROSTIS. *Roth.* (Species of ARUNDO and AGROSTIS. *L.*) (Reed Bent-grass.)

Calix 2-valved, 1 flowered, valves acute or acuminate. *Corolla* 2-valved, mostly shorter

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length of the corolla, which is of a leaden purple, sometimes subject to monstrosity, forming a nut like a *Scleria!*

HAB. In sterile naked plains and arid argillaceous soils, near Fort Mandan on the Missouri.

rufa. El. This genus appears to be very closely allied to *Panicum*, and somewhat to *Milium*, particularly to the *M. amphicarpon* of Pursh. The *Milium villosum* of Jamaica may probably belong to this genus.

73. PHALARIS. *L.* (Canary-Grass.)

Calix **1-flowered, 2-valved; valves subovate or lanceolate, carinate, equal and nerved, including the corolla.** ***Corolla*** **2-valved, mostly hairy at the base.**

Flowers generally in terminal cylindric or ovate spikes. In *P. canariensis*, the corolla consists of 4 valves, in *P. aquatica* of 3.

Species. 1. *P. maritima* (*Arunda arenaria*. Lin.) This species may be considered as intermediate between *Arunda* and *Phalaris*.—On the coast of New-Jersey. *Z. Collins, Esq*. In Europe considered of great importance for arresting and consolidating the movable sands of the sea-coast. The rest of this genus is chiefly confined to the south of Europe and Northern Africa (Barbary.)

74. BRUCHMANNIA. *Jacquin.* Phalaris *erucæformis. L.*

Calix **2-valved, 1-2-flowered, valves semiobcordate, inflated, equal.** ***Corolla*** **2-valved, included within the calix, valves unequal, the dorsal valve setaceously acuminate; one of the flowers often abortive or wanting.**

Culm erect, panicle irregularly spiked, spikelets interrupted and subdivided; flowers disposed in 2 rows on one side of the rachis. (Valves of the calix somewhat margined or slightly carinate, gibbous, and abruptly acute, with scariose margins, in the American plant generally 1-flowered, corolla glumes unequal, the dorsal valve convex, terminated by a short setaceous mucrone; smaller valve flat, rather acute; stigmata long, filiform and hirsute.)

Species. 1. *B. erucæformis*. Around Fort Mandan, on the Missouri, in alluvial soil. Flowers in July. There is only as yet one species of this curious genus discovered, there being no apparent distinction observable betwixt the American plant and the one figured and described by Jacquin in his *Hortus Schoenbrunnensis*. It is equally common to Siberia, the south of Europe, Hudson's Bay, and the Missouri.

75. CRYPSIS. *Lamarck.* (Thorn-Grass.)

Calix 2-valved, oblong, 1-flowered. *Corolla* 2-valved, longer than the calix. *Stamina* 2 or 3. (Spike surrounded at the base by the sheath of the leaf; or the flowers collected into a leafy capitulum.)

Culm decumbent or procumbent, extremely branched; leaves rigid and pungent; flowers collected in squarrose heads, or short and dense irregularly involucrate, lobed spikes.

SPECIES. 1. *C.* * *squarrosa.* Stem decumbent, much branched; leaves short, all rigid, and sharply pungent; capituli squarrose, few flowered; dorsal valve of the corolla coriaceous, somewhat cleft at the point, with a shortish subulate central cusp.

On arid plains near the "Grand Detour" of the Missouri, almost exclusively covering thousands of acres, and as pungent as thorns. ⊙ Not more than 3 or 4 inches high; the flowers not collected into heads, as in the European species, but merely in squarrose terminal fascicles; the outer glume of the corolla is likewise cleft so as to present 3 short coriaceous subulate points.

2. *Virginica* Spike oblong, thick and lobed, generally sheathed by the inflated vaginæ of 2 short leaves; stem procumbent, geniculate, nodes numerous, approximating; leaves involute, rigid, and pungent; calix carinate, shorter than the corolla.

Agrostis virginica. WILLD Sp. Plant. *Agrostis pungens.* Schreber. Gram.

Leaves short, filiform subulate, rigid and divaricate, almost entirely smooth, and somewhat glaucous; culm decumbent branched from the base; spikes closely sheathed, axillary and terminal, about an inch long, sometimes oblong-ovate, lateral spikes often very short and roundish, rachis thick and angular at the base; calix nearly equal, compressed carinate, acute, shorter than the corolla, ciliate on the carina (seen through a lens); corolla valves often rather unequal, inner valve somewhat obtuse, naked at the base; style exserted, long.

Grows in the streets of Philadelphia. DR. W. BARTON. In Virginia. Pursh.

It appears to be allied to *Phleum*, but more distinctly to *Phalaris;* its habit is that of *Crypsis.* To *Agrostis* it has no affinity whatever.

Of this genus there are only 2 other species, the *C. aculeata,* common to the south of Europe and Barbary, and like the *C. squarrosa* annual. The 2d species, *C. Schoenoides,* grows in Italy, the south of France, Spain and Smyrna. These 2 species are nearly related to the genus *Phleum.* The *C. squarrosa* in the structure of the corolla glume, appears much more nearly allied to the genus *Cenchrus.*

76. PHLEUM. *L.* (Cat's-tail Grass. Timothy-Grass.)

Calix 2-valved, 1-flowered, valves linear with a retuse point, prominently carinate, each terminating in a cusp (or short awn). *Corolla* included within the calix.

Flowers in dense cylindric spikes, simple, or partially divided, calix indurated, generally rough, ciliate or hispid, flat and truncate, with the mid-rib going out into a shortish awn.

Species. 1. *P. pratense.* (Introduced, now naturalized in the United States, and of great importance in agriculture.) The few species of this genus (7) are all natives of Europe, with the exception of the *P. dentatum* of the Cape of Good Hope, which evidently belongs to some other genus.

77. POLYPOGON. *Desfontaines.*

Calix 2-valved, 1-flowered, each of the valves awned. *Corolla* 2-valved, shorter than the calix, the exterior valve terminating in an awn.

Culm simple or branched, flowers in spiked panicles, awns of the calix long and straight (being properly an elongation of the mid-rib,) awn of the corolla slender, also terminal and erect.

Species. 1. *P crinitum?* (*Phleum crinitum,* Smith.) The *Phleum* described by Mr Elliott, must either be this plant, or a new species, as he describes the spike to be compound, and the mid-rib of the calix extended into an awn twice its length with a corolla "much smaller than the calix." Mr. E. found it upon Sullivan's island, apparently naturalized, and not more than 6 to 10 inches high Of the *P. pratense,* Sir J. E. Smith, in *Flor. Brit.* says' "aristis brevibus, subdivaricatis." Desfontaines remarks in his '*Flora Atlantica*' of the same plant as growing in Northern Africa "glumæ—mucronatæ, mucrone brevissimo, horizontaliter conniventes;"—2. **racemosum*,† (*Agrostis racemosa*, Mich.) Of this genus there are now 5 species described. The *P. monspeliense* (or *crinitum*) on the sea-coasts of France and England, and probably in the United States; 2 the *P. maritimum* discovered by Bonpland, near Rochelle in France, 3 the *P. vaginatum* found by Pallas in the Crimea, and lastly, the *P. fasciculatum* near Estremadura in Spain.

78. ALOPECURUS. *L.* (Fox-tail Grass.)

Calix 2-valved, 1-flowered. Corolla 1-valved, awned from the base.

Culm generally simple, terminating in a dense and usually cylindric, simple or lobed spike. In the *A. pratensis* and the *A. agrestis*, the glumes of the calix are connate

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† *Culm* very tall, compressed, branched, and somewhat decumbent; panicles interruptedly spiked, both axillary and terminal; many-flowered; flowers conglomerated in approximating lobes; calix glumes nearly equal, narrow lanceolate, 1-nerved, each nerve terminating in a very long scabrous seta (after the manner of *Festuca*); corolla glumes nearly equal, almost terete, much shorter than the calix, (the exterior valve terminating in a straight awn, nearly its length) pilose below; seed cylindric.

Habitat. On the alluvions of the Missisippi and Missouri; abundant around St. Louis, (Louisiana.)

Obs. Arista of the calix more than its length; leaves smooth and linear, culm much branched, often 8 feet high, and decumbent upon the neighbouring plants. Pubescence of the corolla hairy, principally near the base, but not as long as the corolla; the awn of the flower appears to be often wanting. This species seems to be somewhat allied to the *P. fasciculatum* of Spain, but differs very essentially in the nearly equal length of the calix valves, and indeed from the genus in the rather rigid structure of the awns, and the entire but membranaceous margins of the calix; (in *P. Monspeliense* the calix is cleft at the point;) the pubescence also near the base of the corolla, but not absolutely so, and much shorter than it in length, separates it from *Calamagrostis*; neither is this pubescence disposed in 2 lateral tufts as in *Agrostis*, at the same time it is in this genus an anomalous circumstance.

(or united near the base). In most of the species the awn is geniculated or bent at an obtuse angle.

SPECIES. 1. *pratensis*. (Naturalized; frequently assuming the decumbent habit of *A. geniculatus*. According to Desfontaines this species is subject to the parasitic affection of microscopic *fungi*, called in France *Ergot*.) 2. *subaristatus* † MICH.

Nearly all the genuine species of this genus are confined to Europe, also extending into Barbary in Africa. There are 10 species described, of which there are 2 at the Cape of Good Hope, and 1 at the straights of Magellan.

79. PANICUM. *L.* (Panick-grass.)

Calix 3-valved, exterior valve often very small, 1-flowered, (mostly with the rudiments of a sessile, neutral or masculine floret.) *Corolla* (hermaphrodite) 2-valved, cartilaginous and persistent.

Flowers densely or loosely paniculate, the panicle sometimes recemosely divided, with lateral conglomerations upon an angular rachis; but for the most part diffuse or spreading, pyramidal, divaricate, or dichotomous, every where terminated by single flowers, approximating by pairs. In many species, the accessory, now considered the outer glume of the proper calix, is very minute, in these species the calix is often oval, or obovate, pubescent, with the imperfect flower always destitute of sexual rudiments, and the panicle divaricate. Some other species have the valves of the calix approaching to equality, mostly acuminated; in these there is generally, if not constantly, an imperfect floret producing stamens, and they are usually furnished with a dichotomous panicle, either appressed, or diffuse and pyramidal.†

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† Culm about a foot high, and as well as the sheathes glaucous, repent at the base, or geniculate. Leaves smooth, 2 or 3 inches long on the culm; stipula elongated, semicylindric, Spike 1 to 2 inches long, somewhat attenuated above, cylindric, a little lobed or divided near the base. Flowers ovate obtuse, a little dilated. Calix connate at the base, conspicuously ciliate on the carina and margins. Corolla obtuse, smooth, edged with green as well as the calix; awn a little exserted, straight, originating somewhat below the middle of the valve. Stigmata white, filiform, exserted more than the length of the corolla, scarcely plumose.

In the waters and on the margins of ponds, in Upper Canada. *Mr. Whitlow*. In New-Jersey, near Philadelphia. Nearly allied to *A. geniculatus*, but the flower is not awned from the base, and the awn is also straight.

The generic character of *Panicum* is now described by Schreber as follows:

Calix of 2 very unequal valves, containing 2 flowers, the outer one male or neuter. Corolla of 2 unequal valves, finally cartilaginous and investing the seed.

Schreber remarks, that the inner glume of the imperfect flower being overlooked, its outer glume was conceived to belong to the calix: hence the calix was thought to consist of 3 valves, of which the third was much the least.

SPECIES. § I. Paniculate; flowers in dense racemes. —1. *Crus-galli.* 2. *Walteri.* 3. *gibbum,* EL. 4. *molle,* (calix only 2-valved? but 2-flowered, one of the flowers stamniferous only, allied to *Milium?* MICH.) 5. *gymnocarpon,* EL. (A very remarkable species, with the valves of the calix somewhat carinated, and nearly all equal, with an imperfect neutral rudiment attached to the base of the perfect flower; the whitish indurated corolla in seed almost resembles a *Scleria,* and is scarcely half the length of the calix. This species is closely allied to the genus *Orthopogon* of Brown, but the valves are only acuminated, not awned) 6. *geniculatum,* EL. 7. *anceps.* 8. *hians,* EL. (*P. divaricatum.* MICH.) 9. *fusco-rubens.*—§ II. Flowers in panicles.—10. *virgatum.* 11. *nitidum.* 12. *dichotomum.* 13. *capillare.* 14. *latifolium.* 15. *scoparium.* 16. *pauciflorum,* EL. 17. *amarum,* (of an extremely bitter taste! EL.) 18 *scabriusculum.* 19. *nervosum,* E. 20. *multiflorum,* E. 21. *ovale,* E. 22. *lanuginosum,* E. 23. *viscidum,* E. (remarkably viscid or glutinous near the nodes of the culm. Several other species in the United States have glandular exudations.) 24. *villosum,* EL. 25. *pubescens.* 26. *sphærocarpon,* E. 27. *ciliatum,* E. 28. *ensifolium,* E. 29. *barbulatum.* 30. *microcarpon,* E. 31. *Melicarium.* 32. *debile,* E. 33. *angustifolium.* 34. *divergens,* E. 35. *elongatum,* PURSH.

The southern and middle states of North America now afford about one third as many species of this genus as are at present discovered in the world. About 110 genuine species of Panicum are described, independent of those with involucellate spikes, which are now placed in the genus *Pennisetum,* and a few others in *Orthopogon.*

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† This habitus merely describes the American species.

Of these, besides what we have enumerated, New Holland affords 32 new species, according to Mr. Brown, besides several others common to various quarters of the world. In Great Britain it is doubtful if there be a single indigenous species of this genus, if we except the *P. Crus-galli*, which may, however, have been introduced from the continent of Europe. Desfontaines describes 8 species in Barbary, of which only 2 are peculiarly indigenous, the *P. debile* and *P. Numidianum*, the other 6 are equally common to the South of Europe, but of these there are only 3 which correctly appertain to the present genus. Nearly all the other Panicums are pretty equally divided betwixt India and America within the Northern tropic, particularly the West India islands. In Jamaica there is a shrubby species, the *P. divaricatum*, and in India 2 others, viz. the *P. arborescens* and the *P. curvatum*. The *P. Milium* or Millet, now cultivated in the South of Europe, is also from India. From this view, it is evident that the genus *Panicum*, generally speaking, belongs to the tropical regions; hence we find this genus to increase upon us in America, as we proceed through the southern states, where they are often in such abundance as locally to exclude almost every other grass; still we find many species of this genus in the United States, extending to, and some even greatly beyond, the 40th degree of North latitude.

80. PENNISETUM. *Richard.* (Some species of *Panicum* of *L.*) (Bristly Panick-grass.)

Involucrum composed of many setæ (or bristles.) _Calix_ 2-valved, valves unequal, 2-flowered; one of the flowers hermaphrodite, the other masculine (or rarely neuter) both sessile. (Flowers spiked, polygamous.)

Spikes simple or compounded; partial involucrum, composed of several deeply divided or separate bristles, including 1 or 3 flowers, many of the flowers abortive; in some species apparently a bristle at the base of each embryon flower whether perfect or abortive. Most of the foreign species, on which the name was founded, have an involucrum of two kinds of setæ, a few of the lower ones, (as in *P. orientale*) being longer and plumose.

Species. 1. *P. pungens.* (*Panicum Cenchroides* of Mr. Elliott, but this name being already adopted in the present genus, a change becomes necessary: very nearly allied to *Cenchrus*, and furnished with a spiny involucrum.) 2. *lævigatum*, El. 3. *glaucum*. 4. *viride*. 5. *verticillatum*. (These two last appear to have been introduced.) 6. *corrugatum*. 7. *Italicum*. (This species is supposed to be the true *Panicum* of the ancients, and its drooping panicle is described by Pliny, who speaks of it as not so much used as the Millet (*Panicum miliaceum*) in making bread, but weighing more than any other grain, as well as increasing more in bulk when cooked. It is still cultivated in Italy and other parts of Europe, and from the vast size of its spike must be very productive. Mr. Elliott remarks, that in Carolina it sometimes attains the height of 10 feet. Of this genus, though not numerous, there are species in Europe, India, the West Indies, Africa, and New Holland.

81. ORTHOPOGON. *Mr. R. Brown.*

Calix 1-flowered, with 3 nearly equal valves, all awned, the awn of the exterior valve much longer than the others; awns straight, and smooth.

With the exception of the present species, these are tropical grasses, growing in shady places. Their leaves flat, and broadish. Spike composed of alternate spikelets directed all one way, and sometimes consisting of very few flowers.

Species. 1. *O. hirtellum*. (*Panicum hirtellum*, Lin.) In Florida and South Carolina. In this species, as it appears in the United States, the spikelets contain from 5 to 8 flowers, the partial and general rachis often smooth as well as villous, sometimes the valves of the calix are multiplied to 4, of which the external ones whether above or below are furnished with very long, smooth, straight, and *viscid* awns; the neutral rudiment at the base of the inner valve of the indurated perfect flower is very minute and bifid, constantly attended with an oblique and imperfect lateral valve, ciliate at the upper edge as are all the valves of the calix, whether the other pubescence be present or not. Of this genus Mr. Brown describes 4 species in New Holland, the *P. compositum* of Ceylon as well as the present plant are also included in this genus by its founder, and there appears to be some other species in India and the West India islands.

82. DIGITARIA. *Haller. Richard.* (Crab-grass.)

Calix 2 or 3-valved, concave; exterior valve minute, or none, second variable, the innermost

as long as the corolla. *Corolla* 2-valved, oblong-ovate, terete, and awnless. *Style* very long. *Nectary* cleft.

Spikes digitate, linear; flowers by pairs alternately subsessile. Species of *Panicum* of Linnæus and others; with which they nearly agree in structure, but possess the habit of *Paspalum*.

SPECIES. 1. *D. sanguinalis*. 2. *villosa*. 3. *filiformis*. 4. *paspalodes*.

Except the *D. sanguinalis* and the *D. humifusa* of Europe, the few other species of this genus, about 12, are confined to India and North America.

83. CYNODON. *Richard*. (Bermuda-grass.)

Calix 2-valved, spreading, lanceolate. *Corolla* larger than the calix, 2-valved; the exterior valve large and ovoid. *Nectary* truncate.

Spikes digitate, flowers imbricated in a single series, solitary.

A remarkably creeping grass, growing very luxuriantly in the sands of the sea-coast, as well as the poorest loose soils, and were not its extirpation so difficult, might be of importance for forming pastures where scarcely any other vegetable could exist.

There is only 1 species, the *C. Dactylon*, common to Europe, North America, and the West India islands.

84. PASPALUM. *L.*

Calix **2-valved, equal, mostly orbicular. *Corolla* 2-valved, of the same figure and magnitude. *Stigma* plumose.**

Flowers in digitate spikes arranged on one side; mostly in 2, 3, or even 4 rows; rarely alternating in a single row, in some species ovate as well as orbicular. Spikes generally digitate and definite, in a few species allied to the genus *Ceresia*, viz. *P. membranaceum* (*Ceresia fluitans* of Mr. Elliott) and the *P. stoloniferum*, the spikes are very numerous, and disposed almost verticillately upon a raceme, in these also the flowers are ovate, and the rachis membranaceous. This genus, as Mr. Brown very justly observes, is closely allied to *Panicum*, at least to the species which produce spikes.

SPECIES. 1. *P. setaceum.* 2. *debile.* 3 *ciliatifolium.* 4. *dasyphyllum*, El. 5 *præcox.* 6 *læve.* 7. *Floridanum.* 8. *plicatulum.* 9. *purpurascens*, E 10. *distichum.* 11. *vaginatum.*—§ II. Spikes in racemes.—12 *membranaceum.* 13. *stoloniferum.* In New-Jersey, *Pursh.* Near New Orleans abundant. I suspect these 2 last marked as species, are varieties of the same plant. This species, originally discovered in Peru, has been greatly recommended to agriculturists. In warm, maritime situations, it continues growing and flowering throughout the year, and is undoubtedly productive and important in South America; but in Europe it is entirely destroyed by the earliest frosts of the autumn, being quite a tropical annual

This genus, with the exception of the above species, is confined to the West Indies and the tropical portions of the American continent; there is at the same time, 1 species in Japan, 2 in India, 1 in Surinam (Africa), and another in China The *P. conjugatum* is common both to Jamaica and Surinam. There are also a few species in New Holland. Europe produces no species of this genus.

85. ARISTIDA. *L.*

Calix 2-valved, 1-flowered. *Corolla* 1-valved, terminated by 3 awns.

Culm paniculate; panicle sometimes contracted like a dense spike, or elongated into a compound raceme, in others spreading or divaricate, in some species trichotomous, in others dichotomous. Flowers commonly approximating by pairs; calix as in *Avena* and *Stipa*, longer or shorter than the corolla. Corolla generally described as consisting of a single glume; Mr. Elliott detects the rudiments of a minute inner glume in *A. spiciformis* and *A. lanosa.* The corolla of all the species is terminated by 3 awns, sometimes of very unequal length, scabrous or plumose, inclined in various directions, the central awn often horizontal, sometimes all equal and then divaricate, the awns very rarely contorted.

SPECIES. 1. *A. spiciformis*, El. 2. *stricta.* 3. *lanosa*, El. 4. *gracilis*, E. 5. *oligantha.* 6. *dichotoma*, (the larger contorted awn of this species is hygrometric.) 7. *pallens*, (in depressed situations, near Fort Mandan on the Missouri.)

8. **tuberculosa.* Culm rigidly erect, dichotomous, with tumid articulations and small tubercles or callosities in the axillæ of all the branches; panicle rigid, rather short, ramuli approximating towards the summit of the culm,

distinct at the base; calix valves carinate, with very long subulate points, and twice the length of the corolla; corolla cylindric, stipitate; awns smooth, nearly equal, very long, spirally convolute, and growing together towards the base.

Culm with very few articulations, (2 to 3 feet high.). Sheaths of the radical leaves mostly tomentose; leaves smooth, very long and subulate. Branches erect, removed from the culm, and the flowers often from each other by the interposition of small callosities at their base. Valves of the calix subulate, often more than an inch long. Flowers distinctly stipitate, stipe villous; awns twisted together at the base, nearly equal, more than 2 inches long.

In the sandy pine forests of Georgia, a few miles from Augusta.

Of this genus there are 5 other species described as growing in the West Indies and South America, 1 in the island of Teneriffe, 7 in India or the neighbouring islands, 2 at the Cape of Good Hope, 1 in New Holland, 1 in Spain, and 3 in Barbary, of which the *A. pungens* is a shrub with plumose awns.

86. STIPA. *L.* (Feather-grass, Long-awned grass.)

Calix **2-valved, 1-flowered.** ***Corolla*** **shorter than the calix, 2-valved; valves involute and truncate.** ***Awn*** **terminal, very long, deciduous, and contorted at the base.**

The habitus of this genus is so very similar to that of the preceding that we shall omit the repetition. Here, however, the corolla glume is only terminated by a single awn, but often of prodigious length, in some species elegantly plumose, frequently contorted near the base. It is described as deciduous though apparently often without any good reason.

Species. 1. *S. avenacea*. 2. *Canadensis*. 3. *juncea* (of Europe as described by Linnæus with the "awns (nearly) straight and without pubescence." The African variety figured by Desfontaines, has twisted pubescent awns, and blunt seeds; the Missouri plant has a nerved chaffy loose calix, filiformly acuminated to more than double the length of the seed, which last is acutely stipitated about one third of its length, the stipe pubescent, the seed rather obtuse, distinctly articulated to the awn, which is smooth and slender, scarcely contorted, and near half a foot in length. This species grows very commonly on the grassy plains of the Missouri, as well as the *S. Virginica*, and are very troublesome when in seed, adhering by the pungent stipe to every thing which comes in their way. 4. *bicolor*. (*S. barbata*, MICH.) Also in Brazil. 5. *expansa*. 6. *stricta*. 7. **parviflora*.† There are now about 18 species of this genus, of which 5 are European; there are 2 species at the Cape of Good Hope, 1 in Siberia, 3 in the warmer parts of America, (many more probably discovered by Humboldt and Bonpland), the rest exist in North America and Barbary; of these the *S. juncea* is common to this part of Africa, Europe, and North America, the *S. parviflora* of Barbary also grows on the plains of the Missouri, and is probably the same plant as the *S. aristella* of Europe.

Not a single species of this genus is useful in agriculture. In Europe the species are thinly scattered, in Barbary and Upper Louisiana they appear in many places the prevailing herbage, communicating to the desert plains in autumn the colouring of harvest, called *payjonal* by the American Spaniards.

87. SACCHARUM. *L.* (Sugar-Cane.)

Flowers all hermaphrodite.—*Calix* with a long woolly involucrum at the base, 2-valved.

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† This species is figured and described by Desfontaines in his *Flora Atlantica*, 1. p. 98. t. 29. as growing in Barbary. The Missouri plant appears, however, to be a distinct variety, though assuredly not a distinct species.

Stem from 1 to 2 feet high, smooth. Leaves smooth, sheathing the stem and the panicle, filiformly attenuated, but not rigid. Panicle long, appressed, many-flowered. Peduncles filiform. Calix about one half longer than the corolla. Glumes compressed carinate, partly 3-nerved, nearly equal, abruptly and capilliary acuminated, corolla somewhat villous, sessile, or nearly without stipe, awn smooth, becoming capillary towards the extremity, somewhat flexuose, about an inch and a half long.

Grows abundantly with the other species on the plains of the Missouri. Differs from the African plant in the leaves not being rigid, and the seeds villous, also by the capillary acumination and compression of the calix, and as well as the obtuse form of the seed.

Corolla 1 or 2-valved, with or without a terminal awn. *Stamina* 1 to 3.

§ II. Erianthus, *Michaux.* Panicles appressed, almost in the form of a spike; interior glume of the corolla always terminated by a long awn. Stamina 2. (Nearly allied to *Andropogon.*)

Culm tall and solid, terminated by an appressed spike-like panicle; involucrate villus, of various lengths; inner glume of the corolla always awned, awn straight; (in *E. contortus* spirally twisted, and the flowers alternately pedicellate: perhaps an *Andropogon*;) leaves expanding; calix 1-flowered.

Species. 1. *alopecuroideum.* (The trivial name of *giganteum* given by Walter and retained by Persoon, can only be used with propriety relative to the genus with which Walter at first associated it; as a *Saccharum*, which it is, although indeed tall, it is almost every way inferior in size to the other species of the genus.) 2. *brevibarbe.* 3. *strictum*, El. 4. *contortum*, El.

This genus with the exception of the North American section, is confined to the tropics. There is 1 species in Teneriffe, 1 in Japan; the *S. officinarum* or true sugar-cane, with four other species are natives of India; there is another species in the West Indies, 1 in Guinea, and 1 in Italy, with the *S. cylindricum* common to the South of Europe and Barbary.

88. ANDROPOGON. *L.* (Beard-grass.)

Flowers in pairs, polygamous; the hermaphrodite sessile; the masculine or neutral flower, without awn and pedicellate.—Hermaphrodite. *Calix* 2-valved, 1-flowered. *Corolla* of 3 valves; the second valve smaller and awned, the third interior minute. *Stamina* 1 to 3. *Receptacle* or *rachis* mostly villous. *Involucrum*, a fasciculate villus at the base of the flowers. (In many species the leaves are boat-shaped, or like tumid sheathes.)

Culm tall, generally cleft into numerous flat branches, terminating usually in proliferous or concatenated branchlets (called spikes), disposed by pairs, by threes, or more, and then digitate arising from the summit of single lateral or terminal peduncles, either naked, or more frequently sheathed by cymbiform acute or acuminated leaves, in some species so closely as not to admit the expansion of the spikes; flowers alternate and sessile, with lateral abortive pedicellate florets, sometimes mere barren pedicells, arising near their base. In the American species, the involucrate villus is often short, sometimes inconspicuous.

SPECIES. 1. *A. nutans.* 2. *avenaceum.* 3. *ciliatum*, EL. 4. *melanocarpus*, EL. 5. *scoparium.* 6. *macrourum.* 7. *ternarium* 8. *virginicum.* 9. *bicorne.* 10 *argenteum*, EL. 11. *dissitiflorum.* 12. *vaginatum*, EL. 13. *tetrastachyum*, EL. 14. *furcatum.*

In India there are 11 species of this genus, 2 of which, the *A. Nardus* and *A. muricatum*, are every where cultivated for their aromatic odour. There are also 3 species in Japan, 5 in the south of Europe, most of which are also indigenous to Barbary, 1 species peculiar to that country, and 1 at the Cape of Good Hope, 2 in the West India islands, and now 14 species enumerated in the United States, of which, several are also common to the tropical regions of the American continent. Excepting the continent of India, there appears not to exist a single genuine species of *Andropogon*, within the southern hemisphere.

§ II. *Calices 2-flowered, dispersed.*

89. TRISETUM. *Persoon.* (Three-awned Oat-grass.)

Calix 2 to 3-flowered, acuminate and carinate. _Corolla_, (outer valve) terminated by 2 shorter, almost tooth-like awns (or the apex of the glume setaceously bifid,) and 1 longer straight dorsal awn, not contorted.

Species of *Avena* of other authors, distinguished chiefly by a deeply cleft acuminate and carinate dorsal valve, a central *straight* awn, with compressed pale coloured spikelets, and flosculi which are generally smooth.

SPECIES, 1. *T. pratense*, (*Avena flavescens*, L.) The rest of this genus is chiefly confined to the South of Europe, Barbary, and the Cape of Good Hope.

90. AIRA. *L.* (Hair-grass.)

Calix shining, 2-valved, 2-flowered. _Corolla_ awnless, or awned from the base, 2-valved.

Florets without a third rudiment between them.

Flowers scariose and shining, disposed in capillary panicles. In many species the valves of the calix or the corolla are obtuse. From *Avena* the awned species are distinguished by producing straight or geniculate awns, arising from the base of the flower.

Species. 1 *pumila?* 2. *aquatica*, (this species is nearly allied to *Poa*.) 3. *obtusata*. 4. *brevifolia?* 5. *capillacea*. 6. *præcox*. 7. *flexuosa*. 8. *cespitosa*. 9. *mollis*.

This genus is almost exclusively confined to Europe and North America; some species, however, are common to Barbary, and the South of Europe.

91. *URALEPSIS.†

Calix scariose, 2-valved, 2 or 3-flowered, somewhat terete, much shorter than the outer valve of the corolla, acute at the base. *Flowers* alternate, distinct. *Corolla* 2-valved, stipitate, valves very unequal, the *outer* tricuspidate, central cusp much longer, terminated by a straight awn, nerves all pubescent; *inner* glume short, arched inwards. *Seed* somewhat gibbous, enlarged above, arillate.

Grasses with the habit of *Andropogon*, and partly the structure of *Aira*. Culm simple, leaves and sheathes short; racemes few-flowered, remote, nearly simple, and solitary, axillary and terminal, sheathed; sheathes deciduous; (flowers and culm purple.)

Species. 1. *U. purpurea*. (*Aira purpurea*, Walter and Elliott.) Culm terete and somewhat hairy below the commencement of flowers, semicylindric above; racemes shorter than the internodes, few-flowered, flowers nearly sessile. Leaves flat, very narrow, above almost filiform. Calix 1 or 2-flowered, valves nearly equal in length, each with a single nerve, somewhat acute, rarely lacerate. Corolla acutely stipitate; outer valve more than twice the length of the calix, in seed deeply 3-parted, 3-nerved, and reflected, dentures acuminate, the central one terminating in an awn as long as the valve, nerves all pubescent; inner valve about the length of the calix, 2-nerved, arched over the seed, nerves margined above with interrupted tufts of dense villus. Seed subterete, enlarged and inflected above. At the base of the inner valve in the uppermost flower there is either a barren pedicell with an obtuse point, or a third imperfect awned flower.

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† From οὐρὰ, *cauda*, and λεπὶς; *squama*, *palea* or *gluma*, intended to indicate the singularly caudate appearance of the outer corolla valve.

2. **aristulata.* Valves of the calix unequal, obtuse, and lacerate, about 3-flowered; lateral teeth of the outer corolla valve obtuse, and the awn very short.

Near Wilmington, Delaware,—Dr. Baldwin.

Obs. Perhaps only a variety of the former. Upper leaves entirely sheathing; spikelets almosts terete, 3-flowered, dorsal awn merely visible, lateral teeth obtuse, nerves pubescent; inner valve inflected, fringed to the summit.—Calix very acute at the base, purple, in both species persistent, corolla stipitate, villous at the base.

Near as this genus aproaches *Trisetum* in its artificial character, it is still widely separated by habit, and would never probably be referred to *Avena*, being distinguished from both those genera by the remarkable smallness of the calix, its truncate appearance, and want of nerves, as well as the singular inequality or gibbosity of the corolla.

92. MELICA. *L.* (Melic-grass.)

Calix coloured, 2-valved, 2-flowered; glumes loose, obtuse, membranaceous, and unequal. *Corolla* 2-valved, ventricose, smaller than the calix; the rudiment of a third flower betwixt the flosculi.

Panicle in the form of a spike or raceme, rarely more compound; flowers large. In the *M. uniflora* the calix is but 1-flowered; and in the *M. aspera* 3-flowered. To the generic character of *Melica*, Schrader adds "stamens dilated and combined at their base; *nectary* of 1 leaf."

Species. 1. *M. glabra.* 2. *diffusa?* (I have seen a third species from the Northern states collected by Mr. Bigelow, in which the corolla glumes are obovate and villous, a little shorter than the scariose calix, disposed on a raceme-like panicle.) Of this genus there are species in Africa, Europe, and South America. It is, however, a genus neither numerous nor common.

93. HOLCUS. *L.* (Soft-grass.)

Calix 2 flowered, 2-valved, (opaque and nervose.) *Corolla* smaller, 2-valved, the exterior valve awned. *Nectary* linear, 2-parted. *Stigmata* nearly sessile.

Flowers polygamous, one masculine, the other hermaphrodite, paniculate.

Species. 1. *H. lanatus*. 2. *striatus?* 3. *fragrans*, (called Sweet-grass, and Seneka-grass, nearly allied to the *Holcus odoratus;* certainly not a congener with the *H. lanatus* and *H. mollis*, but apparently a *Melica*.)

Grasses of Europe, with the exception of the *H. fragrans*. The *H. lanatus* is now naturalized in the United States.

94. SORGHUM. *L.* (Broom-grass.)

Flowers polygamous, by pairs, the hermaphrodite flower sessile, the masculine or neuter pedicellate.—Hermaphrodite. *Calix* 2-valved. *Corolla* 3-valved; the 2d valve awned, the 3d connecting with the villous nectary. *Corolla* of the male flower awnless. *Seed* large.

Culm tall, flowers diffusely paniculate, leaves expanding. Seed sufficiently large to be cultivated for food somewhat resembling millet.

Species. 1. *H. bicolor*. (By Persoon considered a variety of the *S. vulgare*; cultivated around Lancaster, according to Dr. W. Barton, who has been induced to recommend it to public economy, as a substitute for chocolate or coffee, when parched.) 2. *saccharatum*. (Extensively cultivated in the United States, though no where naturalized. Its large panicles are used for brooms; the seed is given to poultry, and might probably answer the same purposes as that of the *S. bicolor*. The whole plant is highly saccharine, and attempts have been made in France and elsewhere to extract sugar from it; but without sufficient success.)

Of this genus there are only 4 species described by Persoon; 2, if not 3, in India, and 1 in Syria;—the *S. bicolor* is a native of Persia.

95. SESLERIA. *L.* (Moor-grass.)

Calix 2 to 5-flowered. *Corolla* 2-valved, valves toothed at the point. *Stigmata* somewhat glandulous.—Flowers spiked, often purplish, base of the spike bracteate, or involucrate, Early flowering subalpine grasses, growing in calcareous mountains.

Species. 1. *S.* **Dactyloides*. Culm setaceous, leafy; leaves short, flat, subulate, and somewhat hairy; stipules bearded; spikes 2 or 3, few-flowered; flowers in 2 rows, disposed upon an unilateral rachis, calix mostly 2-flowered, and with the corolla acuminate and entire.

Hab On the open grassy plains of the Missouri; abundant. Flowers in May and June. *v.v.* Root after flowering resembling a bulb.

Culm smooth and round, furnished with 2 or 3 leaves, about 4 or 5 inches high. Leaves flat, subulate, and somewhat hairy, 1 to 2 inches in length, and about 2 lines wide; sheathes shorter than the internodes, very hairy around the stipules. Spikes 2 or 3, somewhat oval, subtended by a single leaf, with which they are at first sheathed; rachis compressed, margined, spikelets 6 to 8, by pairs, inclined to one side. Calix 2-valved, 2 or 3-flowered, valves very unequal, each with a single nerve and carinate, the larger oblong-ovate, mucronulate. Outer valve of the corolla oblong-lanceolate, entire, 3-nerved, smooth, and membranaceous, longer than the calix; inner 2-nerved, nearly the length of the outer. Anthers linear, entire, fulvous, exserted. Styles filiform, pubescent.

This species appears on the one hand, allied to *Atheropogon*, and on the other to *Dactylis*. Though rather a *Sesleria* than any other genus, it recedes from it in having the valves of the corolla entire at the apex, and thus it approaches *Dactylis*, at least, the *D. glomerata*.

With the exception of the present species, the genus *Sesleria* is confined to the alpine regions of Northern Europe.

§ III. *Calyces many-flowered, scattered.*

96. POA. *L.* (Meadow-grass.)

Calix 2-valved, many-flowered. *Spikelets* more or less ovate, without awns, valves somewhat acute, discoloured, with scariose margins.

Flowers paniculate, panicles many-flowered, branches often semiverticillate, one sided, coarctate, or spreading; in several species the flower glumes are connected at the base by a tomentum or villus.

Species. 1. *P. trivialis*. 2. *pratensis*. 3. *viridis*, (distinguished from *P. pratensis* by the remarkable compression and almost pungent acuteness of the calix and corolla; valves connected at their base by a very copious, long tomentum; panicle semiverticillate and coarctate.) 4. *nemoralis*. 5. *annua*. 6. *alpina?* 7. *compressa*. 8. *nervata*. 9. *autumnalis*, **El.**† 10. *angustifolia*. 11. *aquatica*. 12. *fluitans*. 13. *rigida*. (These are nearly all introduced species, or common to Europe as well as America, and of great importance in agriculture.) 14. *capillaris*. 15. *tenuis*, **El.** 16. *hirsuta*. 17. *subverticillata*. 18. *crocata*.‡

§ II. **Brizoma.** || Spiculi erect, closely imbricated, flower glumes often angularly 3-nerved; without a connecting villous; valves short, ovate, obliquely pointed, (sometimes producing the appearance of marginal serratures,) inner valve small, seeds more or less spherical.

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† *Pungens* would perhaps have been a better name for this early flowering vernal grass.

Obs Root somewhat cespitose and perennial; culm partly ancipital, about a foot high. Radical leaves erect, long, and narrow; leaves on the culm generally 2, flat, oblong, lanceolate, scabrous only on the margin, the lower about an inch long, the upper just visible; all erect and carinate, with a coarctate pungent point; stipula truncate, lacerate, sometimes abruptly acuminate; sheathes long, but a little shorter than the nodes. Panicle small, semiverticillate, alternate, horizontally spreading, terminating in an almost simple raceme; branches capillary, mostly by twos or threes; fasciculi 3 or 4. Spiculi crowded towards the extremities of the ramifications, cuneate-ovate, or lanceolate, before flowering somewhat acute, 3 or 4-flowered. Calix smooth, inner valve acute. Corolla ovate lanceolate, a little obtuse and scariose at the point, villous at the base, obsoletely 5-nerved, 3 of the lesser nerves ciliately pubescent below. Stamina exserted, tremulous, bifurcate at either extremity. Styles sessile, complicately plumose, white.

Hab. Around Philadelphia in rocky situations, on the banks of the Schuylkill, &c. Flowers in April.

‡ Culm leafy, round, 18 inches or 2 feet high. Leaves smooth, flat, acuminated, 4 to 6 inches long; stipula elongated. Panicle elongated, semiverticillate, branches appressed, numerous, many-flowered. Spikelets in attenuated racemes, small, nearly sessile, acutely ovate, generally 2-flowered, pale green, with yellowish, and sometimes purplish scariose points. Calix acuminated, nearly as long as the flosculi, obsoletely 3-nerved, and carinate. Flowers oblong, rather obtuse, with a dorsal line of pubescence near the base.

Hab. In Canada.—Mr. Whitlow. *Poa hydrophila?* Persoon

|| Species of Poa allied to the genus *Briza*.

Panicles lateral and terminal, spikelets often crowded, flowers numerous; stipula obsolete, densely ciliate.

* *Flowers entirely deciduous.*

19. *conferta*, **El.** (panicles long and very erect, axilliary and terminal; branches in conglomerate sessile clusters, crowded with membranaceous flowers, spikelets appearing pectinate or serrate.) 20. *nitida*, **El.**

** *Inner valve of the corolla and rachis persistent.*

21. *parviflora*, (branches of the panicle dichotomously divaricate; flowers distant, terminal, approximating by pairs upon unequal pedicells, inner valve of the corolla and rachis persistent; seed nearly spherical, rugose. The spikelets of this plant are somewhat glutinous. This is certainly not the *P. striata* of Lamark.) 22. *tenella*. (Culm slender, leaves short and subulate, panicle somewhat verticillate, erect, branches capillary, flexuose and appressed, flowering towards their extremities. Spikelets few, linear, somewhat acute, closely and incumbently imbricated. Calix unequal and very short; flowers erect, appearing alternate, short ovate, with an oblique apex, and almost obtuse, obscurely nerved, with a purple margin, and a white scariose line at the point. Possessing considerably the appearance of a *Briza*.)

23. *pectinacea*. 24. *eragrostris*. 25. *megastachya*, **Koeler**. (*Briza Eragrostis*, **Lin.**) 26. **obtusa*.† 27. *spectabilis*.

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† Panicle elongated, almost simply branched at the base, branches erect; spikelets compressed, oblong-ovate, obtuse, upon very short peduncles, 8 to 15-flowered; valves of the calix acute, nearly the length of the 3-nerved flowers, inner valve with 1-nerve, the outer with 3; culm rather weak and compressed? leaves flat and smooth, stipula obsolete, softly bearded.

Obs. Culm simple, about 18 inches high; leaves few, rather long, flat, and smooth, a little asperate on the margin; panicle about 4 or 5 inches long, simply branched near the base, running out almost into a raceme above; flosculi closely imbricated, compressed; outer valve 3-nerved, truncate at the point; stamina 3, short; styles slender, simply pennate.

Briza virens? Walter. Flor. Car. 79.

Closely allied to the *B. Eragrostis*, (*Poa megastachya*.) but readily distinguished by its unbranched, weak, and compressed stem, the length of its leaves, which are not involute and rigid, the scattered few-flowered panicle, and particularly the obtuse points of the flower glumes, and lastly by the calix, in which the larger valve is 3-nerved, and consequently similar to the corolla, while the calix glumes of the *Poa megastachya* have each but a single nerve, a character which not only distinguishes it well from the present species, but also from the *P. Era-*

28. *reptans.* Ambiguous species.—29. *melicoides.*† 30. *Airoides.*‡

Of the 78 species of this genus in Persoon, there are 28 in Europe, the rest in North America, Barbary, India, the tropical islands of America, a few species at the Cape of Good Hope, and some in the isle of New Zealand. As yet there are only 2 species described as growing in the whole continent of South America.

A genus of the utmost importance in agriculture.

97. BRIZA. *L.* (Quaking-grass.)

Calix 2-valved, many-flowered. *Spikelets*

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grostis, in which the larger valve of the calix is also 3-nerved, similar to the corolla.

Hab. Collected in the neighbourhood of Philadelphia, by Dr. W. Barton, professor of Botany.

† Panicle small, composed of a few simple racemes; calix unequal, obtuse, shorter than the corolla, 2 or 3-flowered; flowers oblong-obovate, obtuse, nerved, connected to the rachis by a tomentose villus; culm long and slender; leaf short, smooth, attenuated

Aira melicoides, Mich. *A. triflora?* El.

‡ Culm 4 or 5 feet high, erect, leaves with very long sheathes, short and acute; panicle erect, attenuated; branches semiverticillate, few and capillary; spikelets oblong, obtuse, nearly sessile, or upon short peduncles, 4 to 6-flowered; calix very unequal, shorter than the corolla; flowers distinct, somewhat cylindric, obtuse, shining, purplish, scariose, and often lacerate at the point, obsoletely 5-nerved, inner valve scabrous on the margin.

Hab. In depressed situations around the Mandan village, on the Missouri. *v.v.*

Scarcely distinct from *Poa distans,* except in habit; being 4 or 5 feet high, with leaves sometimes embracing the culm for 8 inches, scabrous on the margin, acute, and scarcely more than an inch, or an inch and a half long. The panicle is also attenuated, the branches capillary, loose, but erect, never refracted. In most of which characters it differs from the *P. distans,* and does not at all agree with Curtis's figure. It is another of those ambiguous grasses, which, (like the *P. distans* and *Aira aquatica* now considered the same plant,) combines the characters of 2 genera; it has the artificial character of *Poa,* but it is in fact an *Aira,* although producing 4, 5, and 6 flowers in a spikelet. It is probably an important meadow-grass, like the *Aira aquatica.*

distichous, valves ventricose, cordate, obtuse; interior valve minute.

Flowers usually in capillary panicles; spiculi, generally nodding and tremulous. A genus nearly allied to *Poa*.

SPECIES. 1. *B. Canadensis*.† *virens?*

There are but 8 species of this genus described by Persoon; of which, besides the above, there are in Europe 4 species, 1 in India, 1 at *Montevideo*, (South America) and 1 confined to the Cape of Good Hope. Three of the European species are also common to the Cape.

98. UNIOLA. *L.*

Spikelets many-flowered, ovate, compressed, ancipital. *Calix* of 3 to 5 glumes. *Corolla* 2-valved, awnless; *interior valve* smaller. *Stamina* 1 to 3. *Nectarium* 2 leaved, emarginate. *Stigmata* long, muricate. *Seed* ovate, compressed.

Panicle various; in *U. Spicata* nearly a simple raceme; in *U. latifolia* the spiculi are very large and tremulous, as in the European species of *Briza*; in the *U. gracilis* the spikelets are only 3-flowered, in the other species the spiculi have 7 to 10 flowers, in *U. spicata* sometimes as many as 15, and the corolla glumes often numerously nerved. This genus, apparently intermediate betwixt *Poa* and *Festuca*, is readily distinguished by its large, flat spikelets, and abortive flowers, both at the base and extremity of the spike, hence described as having a calix of more than 2 valves; though in the *U. spicata*, referred to *Festuca* by Michaux, there is seldom more than that number. The perisporium appears almost precisely the same as that of many species of *Festuca*.

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† Culm erect, thick and leafy. Leaves flat, attenuated, from 6 to 12 inches long, smooth; stipula truncate. Panicle semiverticillate, rather long, loose, and erect, branches decompound, coarctate, racemiform; pedicells capillary, flexuose. Spiculi cunnate-oval, obtuse, 4 to 6-flowered. Calix very small, nerveless. Flosculi turgid obovate, prominently 7-nerved, terete, sometimes purplish at the point; inner valve concave, flat, large as the outer, with an indurated nerved margin, inflected, and extended a little beyond the edge of the outer valve; nerves somewhat scabrous. Stamens generally 2, not exserted? Styles short; stigmata plumose.

HAB. In Canada and Pennsylvania. Scarcely belonging to this genus; apparently connecting *Poa* and *Briza*.

Species. 1. *U. paniculata*. 2. *spicata*. 3. *latifolia*. 4. *nitida*. 5. *gracilis*. (An American genus.)

99. *WINDSORIA.†

Calix carinate, many-flowered, 2-valved; valves rather large, scariose, uninervial, acute or cuspidate. _Spikelets_ thick; flowers closely incumbent, and distichally imbricated; nerves of the dorsal valve mucronate, with intermediate dentures, ciliate below; _inner valve_ mostly naked, emarginate. _Styles_ slender, with simply pectinated stigmas. _Seed_ calciform, corrugate, impressed with a flat, central, oval hilum near its base.

Flowers paniculate, branches few, decompound, spreading, and flexuose, stipules always pilose; spikelets nearly sessile, tumid, generally purple; corolla glumes short, indurated, somewhat catilaginous; nerves ending in short cusps or minute awns; flowers villous at the base, and along the lower margin of the nerves in the outer valve; the inner valve impressed, smooth, or when seen through a lens obsoletely margined with a slender ciliate pubescence, (never conspicuous as in *Bromus*,) the lower inflected margins projecting. Stamina 3. Styles 2. Germ angularly truncate. Seed short, nearly in the form of a slipper, on the external side obliquely compressed, on the other convex. Perisporium 2-leaved, obtuse, entire.

Species. 1. *W. Poæformis*, (*Poa Sesleroides*, Mich. *P. quinquefida*, Pursh. Spikelets mostly 5-flowered, exterior valve of the corolla ovate, convex, tricuspidate, with 2 intermediate teeth, inner valve with 2 setaceous points, smooth.) 2. *ambigua*, (*Poa ambigua*, Elliott) Panicle small, naked, ramuli nearly simple, alternate; spikelets ovate, thick, sessile, 5 to 6-flowered, dorsal valve 5-toothed, interior valve deeply impressed, smooth. In both these species the stigmas are purple and plumose.

This genus appears to be considerably allied to *Bromus*, possessing, however, much more the habit of *Poa*.

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† In respect to my earliest Botanical friend, John Windsor, M. D., F. L. S., an assiduous English Botanist, not unknown to the president of the Linnæan Society, as a humble though not a popular contributor to his classical Flora of Britain.

From *Danthonia* of Decandolle, (*Festuca decumbens*, LIN.) it is scarcely distingishable except by habit, producing in both species a spreading and ramified panicle, with a culm of 3 or 4 feet elevation, in place of a simple raceme, and a culm of 6 inches or a foot, it is also destitute of the large folliculose calix of Danthonia, which includes, and indeed exceeds in length all the flosculi of the spikelet. The calix of *Windsoria* is, however, larger than the glumes of the corolla, taken singly, and also of a very different structure, but the spikelet is at the same time about twice the length of the calix.

100. DANTHONIA. *Decandolle.*

Calix 2-valved, many flowered, very large, equal to or exceeding the included spikelet. Exterior valve of the corolla concave, with the points emarginate, mucronate, awned, or unarmed and then trifid.

Small grasses, producing for the most part, a simple raceme of spikelets, (usually from 4 to 13); calix confluently nerved, folliculose, exceeding or equaling the spikelet; spiculi from 4 to 9 flowered: dorsal valve acute or acuminate, (not obtuse or almost truncated as in *Windsoria,*) bifid, with a central, membranaceous, and flattened awn, contorted at the base, or simply trifid, (never quadrifid or 5-toothed); inner valve ciliate.

SPECIES. 1. *D. spicata,* (*Avena spicata*, L.) Culm about a foot high, slender, erect, decumbent at the first and second node; leaves subulate, short, those of the root often hairy on the upper surface; stipula obsolete, ciliate; raceme simple, or subdivided near the base; spikelets 4 to 9; calix longer than the spikelet, confluently 5-nerved, convex, acute, with scariose purple margins; flosculi 6 or 7; outer valve oval, convex, acuminate, setaceously bifid, with an intermediate, flat, exserted, smooth awn, discoloured and contorted at its base, obsoletely many-nerved, nerves piliferous, margin scariose; inner valve deeply appressed, ciliate: styles sessile, simply plumose, slender, white; perisporium 2-leaved, obtuse.

This species is very nearly allied to *Bromus.*

2. **sericea.* Culm erect; raceme compounded, branches 2 and 3-flowered; spikelets 9 to 13, 8 and 9-flowered, somewhat shorter than the calix; corolla valves very unequal, outer lanceolate, densely villous on the margin, setosely bifid at the point, with a central contorted awn; inner valve ciliate, much shorter.

Avena spicata, Elliott, p. 174.

Culm erect, often more than 2 feet high, nodes distant. Leaves short, flat, and subulate, smooth or pubescent on the under side; sheath very long, sometimes hairy: stipules a minute, silky fringe, with 2 lateral hairy tufts, Panicle 2 or 3 inches long, branches several, (3 or 4) 2 and 3-flowered. Calix striate, scariose (as in *Avena*), longer than the spikelet. Corolla, dorsal valve oblong-lanceolate, with a long shining villus particularly conspicuous along the margin, terminating in 2 setaceous points nearly its length, awn contorted, and discoloured at the base, more than twice the length of the valve, and (seen through a lens) scabrous; inner valve about half the length of the outer, distinctly ciliate as in *Bromus*.

From Carolina to Florida. Closely allied but very distinct from *D. spicata*, particularly in the panicle, and the conspicuous silky villus of the corolla, as well as the form and proportion of the valves. These 2 species are scarcely congeners with the *Danthonia decumbens;* they appear to form a distinct genus, approximating to *Bromus*.

To this genus are referred by Decandolle *Festuca decumbens* and *Avena calycina*, of Europe.

101. FESTUCA. *L.* (Fescue-grass.)

Calix 2-valved, many-flowered. Spikelets compressed, distichal, acute at either extremity. Outer valve of the corolla entire, generally terminating in an awn. "Seed growing to the corolla." Schrader.

Culm paniculate, rigid, or flexuose and expanding, spikelets erect, or nodding; flowers sometimes awnless, mostly terete, inner valve of the corolla with a smooth margin. Nectarium "of 2 ovate-lanceolate acute leaflets, gibbous at their base, or of 1 rather concave horizontal notched leaf," Schreber. Seed oblong, slender, acute at each end, marked with a longitudinal furrow.

Species. 1. *spicata*. Panicle spiked after the manner of *Uniola spicata*, to which it is nearly related, spikelets rather large, about 5-flowered; glumes of the calix and those of the corolla in the lower flowers very long, and pungently acuminated, but not distinctly awned; valves linear-lanceolate; leaves very short, and with the whole plant glaucous. On the banks of the Missouri, not a foot high, covering extensive tracts. 2 *tenella*. 3. *myurus*. 4. *duriuscula*. 5. *elatior*. 6. *polystachya*. 7. *diandra*. Culm remarkably naked, rather compressed, asperate above, with 3 or 4 broad flat leaves near the base, from 3 to 4 feet high, terminating in an almost simple, few-flowered raceme. Leaves about a foot and a half long, near three quarters of an inch wide, with the sheath a little pubescent. Spikelets compressed, flowers divaricate. Calix extremely unequal, valves acute, 2 to 5-flowered. Exterior valve of the corolla somewhat coriaceous, and much longer than the calix; inner valve much shorter than the outer. Seed partly coated, with an indurated, cartilaginous arillus.—Considerably allied to *Uniola gracilis*. 8. *grandiflora* 9. *fluitans* 10. *Poæoides*. 11. *Unioloides*. 12. *nutans* 13. *parviflora*, ELLIOTT.

The genus *Festuca* is almost peculiar to Europe and North America; a few species exist in Barbary, (Africa) and in Northern Asia.

102. BROMUS. *L.* (Brome-grass.)

Calix 2-valved, many flowered. *Spikelets* oblong, distichal. Outer valves of the corolla often bifid at the point, and awned *below* the summit; interior glume pectinately ciliate.

The habit of this genus is entirely similar to the preceding; the spikelets are, however, generally more or less terete and tumid; the valves of the corolla often furnished with a scariose margin, and in the inner valve, the flexures of the nerves are ciliate; in many species the panicle is nutant, and in some the seed so large as to have been cultivated for the use of horses and other cattle.

SPECIES. 1. *B. secalinus*. 2 *mollis*, (both introduced) 3. *purgans*. In this species, the leaves, which are alternate, approach so near to each other as to appear almost distichal. 4. *ciliatus*. 5. *altissimus*, PURSH. Near Fort Mandan, on the Missouri, very large; scarcely distinct from the *B. canadensis* of MICHAUX?

This genus is chiefly confined to Europe, and Barbary in Africa, there are also, 2 species in South America.

103. DACTYLIS. *L.* (Orchard-grass.)

Calix 2-valved, many-flowered, compressed, one of the valves larger, and carinate, somewhat awned. *Corolla* 2-valved.—*Spikelets* aggregate and capitate.

SPECIES. 1. *D. glomerata*. (Introduced.)

The genus *Dactylis*, as it now stands in Persoon, appears to exist chiefly in the milder regions of Africa, the Cape of Good Hope, and Barbary; there are also 2 or 3 species in India. These species appear, however, to possess little or no affinity with the *D. glomerata* of Europe.

104. KOELERIA. *Persoon.*

Calix irregularly 2 or 3 flowered, 2-valved, valves compressed-carinate. *Corolla* acuminate-oblong, 2 valved, shortly awned, longer than the calix, glumes nervose. (Spike composed of compressed spikelets, often pubescent and subsessile.)

Flowers in a simple lobed spike, almost as in *Phleum;* spikelets crested; calix 2 or more flowered, resembling *Dactylis glomerata*, to which some of the species of this genus are nearly allied.

Species. 1. *K. cristata.* 2. **nitida.* Spike elongated, lobed; lobes crowded, appressed, approximate; spikelets oblong-ovate, smooth and awnless, lower 2-flowered, upper 3, both with an additional setaceous rudiment; pedicells very short, and with the leaf and sheath somewhat pubescent; stipule hairy.

Obs. ⊙? Culm about a span, smooth, and striate; leaf very short, sheath long, spike about 2 inches; spikelets, greenish, scariose, shining, compressed; calix unequal, carinate, acute; larger valve linear-oblong, smooth, (through a lens) ciliate on the keel; corolla similar to the calix, inner valve included in the outer.

On the plains of the Missouri, *v. v.* Very nearly allied to the *Aira cristata* of Smith, and in the structure of its flowers to the *Dactylis glomerata!*

This genus, now containing 8 species, indigenous to Europe, to North America and Barbary, though perfectly natural, is not at present sufficiently defined, except by habit; at the same time it ought never to have been confounded with *Poa*, with *Aira*, or *Avena*.

105. AVENA. *L.* (Oat-grass.)

Calix 2-valved, 2, 3, or many-flowered. *Corolla*, exterior valve lanceolate, somewhat terete, furnished with a dorsal awn. Awn geniculate, and contorted. "*Seed* for the most part invested by the corolla." SCHRADER. (Glumes of the calix membranaceous, resembling follicles.)

Flowers in spreading or contracted panicles, valves of the corolla often becoming coriaceous.

SPECIES. 1. *A. pensylvanica* 2. *palustris*, (nearly allied to the genus *Aira*.) 3. *striata*. 4. *mollis*.

Of this genus there are many species in Europe, in Barbary, and at the Cape of Good Hope. A single species has been found at the extremity of South America.

106. ARUNDO. *L.* (Reed.)

Calix 2-valved, many-flowered. *Corolla* smooth, surrounded at the base by a long villous wool.

Subaquatic: culm tall, in some species perennial; panicle large, diffusely branching; calix 2 to 5-flowered; generally long, smooth, and membranaceous, with flowers of nearly the same form, alternately aggregated, often shortly and straightly awned, and always surrounded at the base with a persistent, conspicuous villous involucrum The genus *Arundo* is nearly related to *Saccharum*, but in the latter the calix, instead of the corolla, is surrounded by a villus.

SPECIES. 1. *A. Phragmites*. 2. *airoides*.

The genus *Arundo*, exists in Europe, in Barbary, in India, and North America. The *A. Donax*, and *A. mauritanica* of Algiers, are shrubs, and the latter is there made use of to construct hedges for gardens.

†††† *Flowers collected into spikes; common receptacle mostly scrobiculate.*

107. ELEUSINE. *Gærtner. Lamark.*

Spikes digitate.—Flowers awnless, disposed on one side of the rachis (or receptacle.) *Calix* carinate, many-flowered, dorsal valve larger, 5 to 9-nerved. *Corolla* 2-valved, awnless. (Flowers all hermaphrodite.)

Low decumbent grasses, growing in the sands of the sea-coast, or in arid wastes. Culm simple, many from the same root, terminated by digitate clusters of one-sided spikes; spikelets many-flowered, (5 or 6) ovate, or lanceolate, somewhat resembling those of *Poa*, but more compressed; valves of the calix and corolla similar, and nearly equal, persistent; outer valve of the calix about 9-nerved, seed 3-sided, arillate, gibbous, transversely rugose, and grooved on one side. (Character from *E. Indica*.)

SPECIES. 1. *E. Indica*.

The very few genuine species of this genus are found in India, Barbary, and North America. The *Cynosurus durus* of Europe, is also referred to this genus by Lamark.

108. *OXYDENIA.[†]

Spikes paniculate, filiform; spiculi 3 to 4-flowered, alternating on a 1-sided rachis.—Common *calix* 2-valved, subulately acuminate, longer than the flosculi contained, persistent; valves uninervial. *Corolla* 2-valved, minute, deciduous, valves obtuse, with or without a terminal awn. *Seed* roundish, naked, smooth, and somewhat gibbous.

An American genus of grasses existing chiefly within the tropics; nearly allied to *Eleusine*, but producing long filiform spikes, disposed in panicles; leaves, in some species, scattered with glandular hairs; the calix and flowers of different forms, and the latter decidous with the seed, which is naked, nearly spherical and smooth.

SPECIES. 1. *O.* **attenuata*. Panicle simple, spikes very long, numerous and attenuated; somewhat subdivided near the base; spikelets about 3-flowered; flowers included in the calix; leaves flat, subulate at the point, and with the sheaths scattered with glandulous hairs.

Eleusine mucronata? MICH. 1. p. 62. PURSH, 1. p. 87. ELLIOTT, 1. p. 175.

Root annual. Culm erect, round, 2 to 3 feet high. Leaves 8 to 12 inches long, 3 to 4 lines wide, slightly hairy, the sheath more conspicuously so towards the nodes; the pubescence exuding a viscous and somewhat acid fluid; panicle simple, 12 to 18 inches long; spikes numerous, (30 or 40) filiform, alternate, 3 to 5 inches long, a little subdivided near the base; calix about 3-flowered, valves linear, subulate, awnless, each with a single nerve, larger than the flosculi; corolla valves, small, ovate, obtuse, smooth, the outer 3-nerved, the inner 2. Stamens and styles very short, purple.

[†] From οξυς, *acid*, and αδην, a *gland*; because the pubescence exudes an acid fluid.

On the banks of the Missisippi, near New Orleans.

This is probably the *Eleusine mucronata* of Mr. Elliott; but he remarks that the glumes of the corolla are hairy, and the stipules bearded, neither of which particulars appear to exist in the present plant. As the valves of the calix are not mucronate it cannot but be improper to apply Michaux's name to this species, which may be probably distinct. To this genus belongs the *Eleusine filiformis* of Persoon, growing in the tropical regions of America, and nearly allied to the present species, having also the same kind of glandular pubescence, and we may probably add the *Eleusine virgata* of Jamaica.

109. CHLORIS. *Swartz.*

Flowers polygamous. Spikes digitate, unilateral.—*Calix* 2-valved, 2 to 4-flowered; valves carinate, with or without an awn; (flowers dissimilar, the abortive florets pedicellate.)

The habit of this genus is similar to *Eleusine*, but the fertile flowers, particularly in *C. petræa* are coriaceous, and gibbously carinated, so as to appear transversely seated in the calix; the flower glumes when in seed, greatly exceed the calix in length, and are of a dark brown colour, the hermaphrodite terminated by a short cusp, the neuter or male flower being inflated and obtuse, like the rudiment in *Melica;* the outer valve of the calix from its emargination, has a cuneate obcordate appearance, with the middle nerve terminated by a short awn; the seed is naked, triquetrous, and smooth.

Species. 1. *C petræa.* 2. *mucronata.* In this species the flowers are also transversely seated in the calix, but not distinctly coriaceous; the seed is very unequally 3-sided, scabrous, naked, and compressed. This structure of the seed appears to indicate some affinity to *Eleusine Indica,* but the habit is widely distinct.

110. ATHEROPOGON. *Muhlenberg.*

Flowers polygamous, in unilateral spikes.—*Calix* 2-valved, 2-flowered, inner valve almost setiform. *Hermaphrodite corolla* 2-valved, ex-

terior valve tridentate or 3-awned, interior bidentate. *Neutral corolla* of 1 valve, with 3 exserted awns. *Seed* naked, oblong, compressed, with a longitudinal furrow.

Spikes alternately disposed in a long or short raceme, definite or numerous; glumes by pairs, opposite, appearing pectinate; rachis acuminated beyond the spikes; valves of the calix narrow, rigid, mucronate, of a bluish purple, persistent. Nerves of the corolla mucronate or awned; awns short, longest in the neutral flower, 2 of the 3 nearly unconnected, arising from the base of the neutral valve. Anthers 3, linear, fulvous. Styles 2, filiform, stigma plumose. (A genus nearly allied to *Sesleria*.)

SPECIES. 1. *A. apludoides*, (*Chloris curtipendula*, MICH. *Cynosurus secundus?* PURSH, Appendix, p. 728.) Spikes short, numerous, (30 or 40) reflected downwards, alternately disposed upon a long raceme, each containing from 4 to 10 glumes, disposed by pairs upon a compressed rachis, mucronately terminated; outer valve of the calix oblong lanceolate, rigid, shortly mucronate, without pubescence, generally with a single cartilaginous nerve, which is a little hispid, (seen through a lens); inner valve adhering to the rachis, nearly the length of the outer, very narrow, 1-nerved, resembling a bristle. Corolla smooth, outer valve of the hermaphrodite 3-toothed, inner 2. Neutral flower of one folded valve, 3-awned, the central awn exserted beyond the calix, the 2 others included, arising nearly from the base of the valve, (improperly considered, and described by Michaux, as the rudiments of 2 other flowers.)—This grass begins to appear in the Western parts of Pennsylvania, and continues to be met with through Ohio, Illinois, Louisiana, and up the Missouri, probably to its sources. Like the *Sesleria cærulea*, it appears to be confined to calcareous soil.

2. *A.* **oligostachyum*. Spikes 2 or 3, nearly terminal, many-flowered; calix and corolla pilose; outer valve of the corolla distinctly 3-awned, the 2 lateral awns shorter, arising near the middle of the valve; neutral valve 3-awned.

On the plains of the Missouri with the above. Common.

Culm round, filiform, nearly naked, or with a single leaf, 8 to 12 inches high, smooth and erect. Leaves very short, smooth, and subulate, stipule and base of the spikes shortly bearded. Spikes 1, 2, or 3, about an inch long, usually curved backwards, unilateral, compressed, and pectinate, the second spikes bibracteate, rachis semiterete. Glumes in a double row, opposite; each 2-flowered;

calix bluish-purple, exterior valve lanceolate, mucronate, with a single nerve; the nerve beset with a few scattered hairs arising from so many tubercles; inner valves shorter, very narrow. Corolla, outer valve lanceolate, carinate, 3-awned, pilose along the margins of the nerves, and at the base; inner valve smooth, shortly bi-cuspidate. Neutral flower 1-valved, obtuse, with 3 awns, and pubescent at the base.

This species, though certainly a congener of the preceding, is very considerably allied to *Chloris*, appearing to unite that genus and *Sesleria*, agreeing partly with the latter in the structure of the flowers, and with the former in its habitus. (A North American genus.)

111. MONOCERA. *Elliott.*

Flowers polygamous, disposed by 2 rows, in an unilateral pectinate spike.—*Calix* 2-valved, rigid, fixed, many-flowered; valves unequal, the inner very small, the outer obtusely carinate, and cuspidate, sending out an horizontal awn above the middle, tuberculate at its base. *Flowers* within the common calix, 3 to 4, neuter, and 1 hermaphrodite; the upper neutral rudiments pedicellate, awnless, the lowest neutral flower sessile, with a long awn: *hermaphrodite* 2-valved, with a 3d. accessory valve, dorsal valves awned; awns all arising below the summit, unequal, and erect.

Culm pubescent, erect, and solid, terminated by a single recurved, appressed spike; calix smooth, nerves glanduliferous; corolla membranaceous, sessile flowers villous at the base and midway along the margin, awned from below the summit. The whole plant aromatic when bruised; aroma gramineous, (resembling *Anthoxanthum odoratum*, *Holcus odoratus*, *&c.*)

Species. 1. *M. aromatica.* (*Chloris monostachya*, Mich. 1. p. 59.)

Culm terete, 3 to 4 feet high. Leaves long, glabrous below, scabrous above; stipules hairy. Spike terminal, solitary, one-sided, spikelets opposite, in 2 rows. Rachis semi-cylindric, margined; receptaculum grooved. Calix rigid, fixed, 2-valved, attached to a callous tubercle at its base; outer valve oblong-lanceolate, mucronate, a little oblique, obtusely carinate, 3-nerved, with a broader membranaceous margin on one side, and a lateral tooth on the other, lateral nerves set with 2 rows of globular resinous glands, the central one, a little pubescent, (seen through a lens) sending out from above the middle, a straight, *horizontal* awn, tuberculate at its base! rigid, and inclined inwards; inner valve acute, 1-nerved, awnless, about one fourth the length of the outer valve. Flosculi deciduous, various, 4 or 5, valves lanceolate, membranaceous, carinate, 3 or 4 neutral, only 1 hermaphrodite, flowers all bivalved; fertile and lowest neutral *sessile* flower villous on the margin about mid-way, the lowest florets also villous at the base; the perfect flower sheathed by an auxiliary valve similar to that of the corolla; sessile dorsal valves all awned below the summit, that of the lowest neutral floret the length of the valve; awns straight: terminal neutral florets pedicellate, smooth, uppermost very small and entirely awnless. Stamens 3. "Styles 2, shorter than the corolla. Stigmas plumose, purple. Nectaries 2, obovate, shorter than the germ." ELLIOTT. Seed arillate, truncate at the apex, oblong, subtriquetrous, smooth, corculum merely attached to the separated farinaceous perisperm.—(Seen persistent in winter, and in a dried state with Dr. Baldwin, of Savannah.)

Although I have not been able, with Mr. Elliott, to observe a 3-valved calix in this singular grass, there still appears to be sufficient reason to separate it from any genus which can include the *Chloris petræa*, and *C. mucronata*. The form and character of the calix, the singular abortion of the flosculi, in which one side of the spikelet is neutral, the membranaceous consistence of all the valves, a large sessile accessory valve or single glumed rudiment applied to the dorsal valve of the only hermaphrodite flower, and the awns all arising from beneath the summit of the valves, are circumstances combined which perhaps no other known genus possesses.

It exists only, with many other North American plants, in the primitive maritime soil, and in depressed situations. Its glandulous aroma is so powerful as to create pungency on being masticated.

112. MANISURIS. *L.*

Flowers polygamous, spiked.—*Hermaphrodite* calix 1-flowered, 2-valved, valves unequal, exterior coriaceous, roundish, the base emarginate on either side. *Corolla* 2-valved, smaller, in-

cluded by the calix. Masculine and neutral calix, uniform or regular.

Flowers imbricated in an articulated, unilateral, compressed rachis; the masculine and hermaphrodite flowers intermixed.

SPECIES. 1. *M. granularis.* (On the sea-coast of Carolina and Georgia. MICH.)

A genus of India and America within the tropics, consisting of 2 species.

113. LEPTURUS. *R. Brown.* (ROTBOLLIA, species, *Willd.*)

Flowers polygamous, spiked. *Rachis* articulated, filiform; articulations single-flowered.—*Calix* fixed, or growing to the rachis, 1 or 2-valved, the valve simple, or biparted.

With the precise characters of this genus, as described by Mr. R. Brown, I am unacquainted, but satisfied with the propriety of separating plants of such dissimilar habits, as have been hitherto referred to *Rotbollia*, I have ventured to give it, however imperfectly.

SPECIES. 1. *L.* **paniculatus.* Rachis incurved, compounded, acutely triangular, branches and summit flower-bearing; spikes on one side, subulate, compressed, unilateral; calix 2-valved, acuminate, 1-flowered; flowers all hermaphrodite, 2-valved.

OBS. Annual. Culm scarcely a foot high, roundish, compressed, leaves short, rigid, sheathing the base of the panicle; panicle or naked rachis, slender, rigid, angular, bearing 6 to 10, compressed, subulate, spikes on one side, not soluble or fragile at the articulations, each 1 or 2 inches long; flowers remote, on one side of the rachis. Calix rigidly fixed, of 2 unequal parallel valves closing the scrobiculum; flower 2-valved, the exterior valve resembling the calix, the interior membranaceous.

On dry saline plains, near Fort Mandan, on the Missouri. Flowering in June.

114. *ANTHOPOGON.† (ANDROPOGON *ambiguum*, Mich.)

Flowers polygamous, irregularly alternating

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† From *ανθος*, a *flower* and *πωγων*, a *beard.* The neutral rudiment going out into a long awn.

upon setaceous spikes disposed in a panicle.—*Calix* 2-valved, 2-flowered, one of the flowers in the form of an abortive pedicellate seta, valves rigid, subulate, and unequal, growing to the impressed angular rachis. *Corolla*, hermaphrodite, 2-valved, outer valve terminated by a long and straight awn. *Neutral* rudiment pedicellate, of one minute valve going out into an awn. *Seed* linear-oblong, internally marked with a longitudinal furrow.

Allied to the genus *Lepturus*, of Mr. R. Brown; differing, however, much in habit, and considerably in character, but destitute of all affinity with *Andropogon*.

SPECIES. 1. *A. Lepturoides*. Root perennial. Culm 18 inches to 2 feet, decumbent at the base, upwards assurgent and erect, leafy, with short and numerous articulations. Leaves short, (1 and a half to 2 inches long) ovate-lanceolate, very acute, smooth, flat, rigidly spreading, and distichally approximate, perceptibly nerved on the under side, and exquisitely striate, near half an inch broad; sheaths bearded externally at the summit, stipula obliterated. Panicle subverticillate; spikes or racemes numerous (20 to 30) simple, setaceous, and very long, (4 to 6 inches;) rachis angular, scabrous. Flowers interrupted, approximating towards the extremities, appressed to the rachis. Calix 2-valved, 2-flowered, (one of the flowers always imperfect and neutral,) growing to the rachis, persistent, valves unequal in length, very narrow, carinate, rigid and pungently subulate, each with a single nerve; the inner valve shorter, appressed to superficial depressions in the rachis; rachis and calix purplish. Corolla hermaphrodite, 2-valved, dorsal valve linear-lanceolate, obtusely carinate, 3-nerved, terminated by a slender, straight, scabrous awn, nearly 3 times its own length, a little villous on the margin, and at the base; inner valve flat, membranaceous, 2-nerved, acute. Neutral rudiment pedicellate, very minute, 1-valved, with an awn somewhat longer than the pedicell. Stamens 3, exserted. Styles 2; stigma plumose. Seed naked, linear-oblong, with a depressed furrow on the inner side, and an obtusely angular ridge on the other.

On the banks of the Potomac, near Harper's Ferry, Virginia, and in the pine barrens of Carolina and Georgia.

This plant is in many respects very closely allied to

Lepturus **paniculatus*, and ought perhaps to be united with that genus as a subgeneric section.

115. ROTBOLLIA. *L.*

Flowers polygamous. *Rachis* articulated, cylindric, often filiform; *articulations* 2 or more flowered.—*Calix* ovate-lanceolate, flat, 1 or 2-valved. *Corolla* smaller, 2-valved.

Spike mostly solitary, terminal; rarely axillary, or fasciculated, in a panicle. Flowers alternating on a flexuose or sinuated rachis. Hermaphrodite calix 1-flowered, 1 or 2-valved; the exterior valve indurated, and cartilaginous, or coriaceous, growing firmly to the rachis, often emarginate at the base, and closing the depressed sinus of the joint, or scrobiculum like a lid; the cavity itself often answering the purpose of a second calicine valve. In this genus there is always more than a single flower on each joint of the rachis, which is fragile.

SPECIES. 1. *R. dimidiata?* On the sea-coast of Carolina and Georgia.

§ II APOGONIA. Articulations 2-flowered; flowers awnless; the hermaphrodite sessile, with a 2-valved calix, the male or neuter pedicellate—Grasses considerably allied to *Andropogon*, but with awnless glumes, and collected into cylindric or filiform spikes upon a scrobiculate or alternately excavated rachis.

2. **ciliata.* Culm erect, tall; spikes terete, upon long peduncles, pedicellate flowers on one side of the rachis, pedicells and margin of the rachis villous; calix and corolla each 2 valved.

Culm erect, solid, compressed, very smooth, sometimes with a few scattered hairs near the joints, 3 or 4 feet high, not fragile at the joints, above and contiguous to the branches, deeply grooved. Leaves long, very narrow, subulate, and acute, sharply and conspicuously serrulate towards the point; sheathes much shorter than the internodes; stipules minute, smooth. Axillary branches terminating in a single spike: spikes 4 or 5, more or less, 3 or 4 inches long, subcylindric, a little compressed, with the pedicellate male or neuter flowers on one side; rachis slender, flat, and externally villous, fragile at the joints. Calix 2-valved, 1-flowered; the hermaphrodite sessile, the masculine or neuter pedicellate; outer valve of the hermaphrodite calix linear-lanceolate, acute, scabrous on the margin, cartilaginous and polished, often minutely bifid or emarginate, inner margin closely inflected, including the corolla, and the shorter membranaceous inner valve (almost after the manner of *Nardus stricta*). Corolla 2-valved, very thin and membranaceous. Masculine or neutral flower and calix smaller. Stamens 3. Styles 2, brown, plumose, and exserted.

Collected by Dr. Baldwyn, on the sea-coast of Georgia. *v. s.* This species has very much the habit, and indeed the character of *Andropogon*.

3. **rugosa*. Culm erect, leafy; spikes cylindric, solitary, axillary, and proximate; joints of the rachis smooth, sub-semicylindric, tumid; outer valve of the hermaphrodite flower transversely rugose, 3-valved; accessory flower mostly neuter, upon an emarginated pedicell.

Culm erect, tall, smooth, and solid, deeply grooved at the commencement of the branches. Leaves rather short, scabrous on the margin and midrib; sheathes compressed, shorter than the internodes, in the stem leaves nearly open, and cloven to the base, with membranaceous margins. Spikes 2 to 3 inches long, axillary, solitary, cylindric, approximating, furnished with cymbiform sheathes, as in the genus *Andropogon;* perfect and imperfect flowers inclined to different sides of the spike, the latter pedicellate, mostly neuter; flowers and rachis entirely smooth, articulations deeply excavated, closed conjointly by the compressed neutral pedicells, and the valve of the perfect flower. Outer valve of the hermaphrodite calix obliquely ovate, acute, cartilaginous, externally marked with 2 or 3 transverse rugose elevations, inner valve acute, coriaceous, covered by the excavated arch of the rachis, and laterally impressed by the contiguous pedicell of the neuter flower; corolla 3-valved, exterior auxiliary valve, or neutral rudiment? nearly the length of the calix, proper corolla valves oval obtuse, considerably shorter than the calix; valves of the neutral calix smooth and even, scarcely 1-fourth the size of those of the perfect flower. Stamens 3. Styles 2, very short.

Collected by Dr. Baldwyn, on the sea-coast of Florida. *v. s.* This species appears to be less allied to *Andropogon* by character than the former, but possesses at the same time much of the habit of that genus, having axillary pedicellate, solitary spikes, of which there are frequently 2 in the same sheath of the leaf; each of the spikes are also partly closed in a proper spathose acuminate leaf with membranaceous margins. This species appears to be very considerably allied to the *R. fasciculata*, of Desfontaines as figured and described in the

Flora Atlantica. To the present section of this genus appertains the *R. hirsuta* of Egypt, and the *R. Coalorachis* of the isle of Tanna in the Pacific. The *R. monandra* of Spain, appears to be almost an Andropogon, from the diagnosis.

The genus *Rotbollia*, though not numerous in species, appears to have been dispersed upon every known sea-coast; they are found upon all the coasts of Europe, of Northern Africa, of America, of India, and of Australia, as well as upon the remotest shores of the latest discovered islands in the Pacific.

116. TRIPSACUM. *L.*

Masculine **calix 2-valved, 2-flowered. *Corolla* 2-valved, membranaceous, imperforate at the base. *Female* calix 1-flowered, 2-valved, exterior valve indurated, resembling an involucrum of one leaf, with 2 small perforated sinuses at its base. *Corolla* valves numerous, very thin and membranaceous. *Styles* 2, exserted. *Seed* large, ovate, arillate.**

Nearly allied to many species of the preceding genus. Flowers monoicous, disposed in spikes, which are simple or aggregated, upper ones masculine, brought together by pairs, each 2-flowered; female calix 2-valved, the exterior valve indurated, firmly closing the scrobiculum, but perforated by 2 small sinuses at its base, and an emargination, or bifid apex for the egress of the styles which are plumose and exserted; valves of the corolla involute, membranaceous, about 6, extremely thin, 4 of them probably rudiments of flowers which are constantly abortive for want of space. Seed large, roundly ovate, arillate, and somewhat gibbous. Perisperm large, corneous and farinaceous: corculum laterally attached, naked. Nectarium of the male flowers 2-leaved, truncate and emarginate.

Species. 1. *T. dactyloides.* On the sea-coast, and also in the vast prairies of the western states. *Z.* Collins, Esq. informs me of its existence near the banks of the Schuylkill, 25 miles above Philadelphia 2. *monostachyon.*

A North American genus.

117. ÆGILOPS. *L.*

Calix **lateral, 2-valved, mostly 3-flowered,**

valves coriaceous, broad, with many awns; awns rigid and divergent. *Corolla* 2 valved, outer valve terminated by 2 or 3 awns.—*Flowers* spiked, intermediate masculine; lateral, hermaphrodite, sessile.

Small grasses, allied to *Elymus*, valves of the calix remarkably rigid and truncate, deeply divided into many flat and long scabrous awns; valves of the corolla also similarly divided and awned.

SPECIES. 1. *Æ.* **Hystrix.* Spike squarrose, with very long recurved and divergent awns: calix smooth, generally 4-parted to the base; segments mostly bifid, unequally 2-awned; spikelet about 4 flowered, the 2 masculine or neuter pedicellate, and intermediate; dorsal valve of the corolla terminated by about 2 or 3 unequal awns.

Considerably allied to *Elymus*. Culm 4 to 6 inches high. Leaves scabrous, striate, pungently acute, about 2 inches long. Spike 1 or 2 inches, sheathed at the base. Rachis flexuose, compressed, narrow, articulations distinct. Spikelets alternate, about 4-flowered, lateral hermaphrodite flowers 2, sessile; intermediate, pedicellate, the lower masculine, the uppermost smaller, abortive. Calix as in *Elymus*, mostly 4-cleft to the base; segments usually bifid, striate, divergent, terminating in very long unequal awns, exterior awn more than 2 inches, subulate, and recurved at an obtuse angle, interior awn shorter and more slender. Corolla, dorsal valve terminated by a long awn arising from betwixt two slender and unequal setæ; inner valve somewhat ciliate, terminated also by 2 short capillary awns.

On the arid plains of the Missouri.

Of this genus there are 2 species in the South of Europe, one of them also common to Barbary, and the other to Candia, there are likewise 2 other species peculiar to those two places.

118. ELYMUS. *L.* (Lyme-grass. Wild-Rye.)

***Calices* lateral, 2-valved, many-flowered, aggregated by pairs, in the manner of a 4-leaved involucrum. *Corolla* 2-valved.**

Flowers in simple spikes, alternately imbricated around a common axis; spikelets 2, 4, or 6-flowered, by pairs, or more rarely by threes in each indenture of the axis; valves of the calix or common involucrum, very narrow and rigid, often setiform, mucronate or diminishing into a mere awn. Exteror valve of the corolla generally awned.

Species. 1. *E. philadelphicus?* 2. *canadensis.* These 2 are probably the same species. 3. *glaucifolius.* A very imperfectly defined species, and very nearly allied to No. 2. 4. *villosus.* 5. *virginicus.* 6. *striatus.* 7. *europæus.* —§ II. Asperella. Calix 0. Corolla 2-valved. Exterior valve larger, mucronate.—Humboldt. 9. *Hystrix?* Spikelets 4-flowered; involucrate calix 0, but corresponding callosities in its place.

A genus of but few species, existing in Europe, America, Northern Asia (Siberia), and Northern Africa (Barbary). Except in North America, where 8 out of 11 species exist, this genus is confined to the sea-coast. The *E. arenarius*, is one of those grasses which assist in arresting the progress of moveable sands.

119. HORDEUM. *L.* (Barley.)

Calyces lateral, 2-valved, mostly 1-flowered, aggregated by threes, so as to resemble a setaceous 6-leaved involucrum; the central flower sessile, the lateral ones stipitate, usually sterile. *Corolla* 2-valved, acute; exterior valve awned.

Very nearly allied both by habit and character to the preceding genus. Flowers spiked, imbricated mostly in 2 rows; calycine involucrum setaceous, 6-leaved, divisions approaching by pairs. In the *H. hexastichon*, the flowers are imbricated in 6 ranks, because all the flowers are hermaphrodite; probably a mere effect of cultivation.

Species. 1. *H. vulgare.* Cultivated. Flowers all hermaphrodite; probably the effect of culture? Still found wild about Margamen in Sicily. 2. **pusillum.* Lateral masculine or neutral flowers awnless, acute; four internal calicine glumes, coriaceous and dilated, those of the hermaphrodite sublanceolate; internal valve of the lateral masculine flower, subsemi-ovate.

Culm 4 to 6 inches, decumbent, or somewhat geniculate at the base. Leaves rather glaucous, a little pubescent on the under surface, striate, about one and a half inches long, and almost obtuse; uppermost sheath tumid and very smooth, embracing the spike. Spike linear; about one and a half inches long. Glumes by threes, distichally imbricated. Lateral imperfect flowers awnless, acute; central sessile flower awned, the awn almost exactly the length of that of the subtending calix; awns scabrous. Calix smooth, nerveless, exterior valve in the outer flowers setaceous from its base, the inner valves obliquely dilated, and rigidly coriaceous, all awned, the inner divisions of the lateral flowers, appearing nearly semi-ovate, the central ones sublanceolate. Corolla nerveless, the inner valve furnished with a short awn, arising from its base. Nearly allied, apparently, to the *H. maritimum*.

On the arid and saline plains of the Missouri.

3 *jubatum*. On the calcareous islands of Lake Huron and Michigan, also on the banks of the Missouri.

The genus *Hordeum* exists chiefly in Europe, extending into Northern Africa, and Tartary in Asia. The 2 species above described are natives of North America, and the *F. jubatum* is also common to Smyrna.

120. SECALE. *L.* (Rye.)

Calix 2-valved, valves opposite, or 1-valved and many-flowered; glumes linear lanceolate, smooth, or channelled on either side; exterior valve terminated by a long awn.—*Flowers* spiked, rachis toothed.

Species. 1. *S. cereale.* Cultivated. No where naturalized or indigenous in the United States. Native in the isle of Crete.

121. TRITICUM. *L.* (Wheat.)

Calix 2-valved, solitary, many-flowered; valves parallel to the rachis. *Flowers* somewhat obtuse, glumes unarmed, or interruptedly awned. *Spikelets* rather short, approximating on the sides of a flat rachis.

Species. 1. *T. sativum.* Cultivated. Of this important species there are 3 well known varieties, as α. *æstivum* (Spring-wheat). β. *hybernum* (autumnal or winter-wheat). γ. *durum*, with the culm solid, and the seed hard, and affording but little farina. This worthless variety is the only one cultivated throughout Barbary. The native place of this species, as well as the *T. polonicum* and *T. Spelta*, can now no longer be ascertained; still it appears probable that the *T. sativum* originated in Egypt, the cradle of agriculture and the arts. With the exception of a variety of the *T. caninum* discovered in South America, this genus appears almost peculiar to Europe.

122. LOLIUM. *L.* (Darnel.)

Calix of one leaf, fixed to the rachis, many-flowered. *Flosculi* distichally imbricated. *Seed* coated by the corolla.—*Spike* simple.

SPECIES. 1. *L. perenne.* 2. *temulentum.* Introduced, now naturalized. In this genus there are species which sometimes produce an inner valve, in which case the *Lolium* approaches very near to *Triticum.*

Order 3.—TRIGYNIA.

123. HOLOSTEUM. *L.*

Calix 5-leaved. *Petals* 5, eroded, or biparted. *Capsule* 1-celled, subcylindric, bursting at the summit.

Leaves opposite; flowers axillary and terminal, in dichotomous corymbs, in *H. umbellatum,* umbellate, sometimes with 4 or 5 stamens, and 4 styles.

SPECIES. 1. *H. succulentum.* Probably nothing more than *Arenaria peploides,* which grows on the sea-coast of New-Jersey, as this *Holosteum* cannot now be found.

A genus of but 5 species, of which there are 2 in the West Indies, 1 in Malabar, and another in Europe.

124. POLYCARPON. *L.*

Calix 5-leaved. *Petals* 5, very short, emarginate and persistent. *Capsule* ovate, 1-celled, 3-valved.

Leaves opposite, or verticillate in fours, furnished with scariose stipules; flowers in a dichotomous terminal corymb.

SPECIES. 1. *P. tetraphyllum.* Around Charleston, (South Carolina) abundant.—ELLIOTT. Probably introduced.

125. MOLLUGO. *L.*

Calix 5-leaved, coloured inside. *Corolla* 0. *Capsule* 3-celled, 3-valved.

Leaves mostly verticillate; flowers axillary and terminal.

Species. 1. *M. verticillata.* A genus consisting of 6 species, inhabiting India, Africa, and America.

126. LECHEA. *Kalm. L.*

Calix 3-leaved. *Petals* 3, linear. *Styles* 0, stigmata 3, plumose. *Capsule* 3-celled, 3-valved, with as many other interior valves. *Seeds* 1 in each cell.

Herbaceous or suffruticose plants, with the habit of *Linum;* leaves alternate or opposite; peduncles many-flowered, either axillary or in terminal panicles. Stamens sometimes 4 or 5.

Species. 1. *L. villosa,* (*L. major,* Mich.) 2. *minor.* 3. *racemulosa.* 4. *thymifolia.* 5. *tenuifolia.*

An American genus, with the exception of the *L. vercillata* of India.

127. ERIOCAULON. *L.* (Pipe-wort.)

Common calix many-leaved, many-flowered; *proper* calix superior of 2 or 3 leaves.—*Male* flowers central. *Corolla* monopetalous, cloven.—*Female* flowers marginal; corolla of 2 petals. *Stigmas* 2 or 3. *Capsule* of 2 or 3 cells, cells 1-seeded.

Scapes angular, sheathed at the base; leaves radical, gramineous; flowers imbricated in an hemispherical capitulum within a common calix, (as in Syngenesious plants), the central flowers masculine, marginal feminine.

Species. 1. *E. decangulare.* 2. *gnaphalodes.* 3. *pellucidum.* 4. *villosum.* 5. *flavidulum.*

A genus confined to India, Australasia, South and North America. There is also 1 species in Europe. Mr. R. Brown has ascertained about 30 species of this genus, many of which are indigenous to New Holland.

128. PROSERPINICA. *L.*

Calix superior, 3-parted, persistent. *Corolla* 0. *Nut* triquetrous, 3-celled.

Subaquatic; leaves alternate, under water pinnatifid, above lanceolate, serrate; flowers axillary, sessile.

Species. 1. *P. palustris.* 2. *pectinata.* Probably only a variety of the preceding.

A genus peculiar to the United States.

CLASS IV.—TETRANDRIA.

Order 1.—MONOGYNIA.

§ I. OVARIUM INFERIOR.

† *Monopetalous.*

129. **CEPHALANTHUS.** *L.* (Button-wood.)

Common *calix* 0; *proper* superior, small and angular, 4-cleft. *Corolla* tubular, slender, 4-cleft. *Stamina* exserted; stigma globose. *Capsule* mostly bipartile, (2 to 4,) 2-celled, 2-seeded; cells semibivalve; exterior valve angular, indurated, interior flat and flexile. *Seed* solitary, sheathed at the apex with a suberose callus. *Receptacle* globose, hairy.

A shrub with entire leaves, which are opposite and ternate; producing flowers in a pedunculate globose capitulum. Seeds 2 to 4.

SPECIES. 1. *C. occidentalis.* From Canada to Florida; near stagnant waters. The bark is considered to be a tonic. A variety, or perhaps a distinct species, with pubescent leaves, is said by Dr. Baldwin, to exist near Riceborough in Georgia.

Peculiar to North America; but scarcely differing from the *Nauclea* of India and Africa, excepting in the number of its parts, which are 4 in place of 5.

130. **DIPSACUS.** *L.* (Teasel.)

Flowers collected into an ovate or roundish capitulum.—*Common calix* many-leaved, foliaceous, (involucrum); *proper* superior, of 1 leaf. *Corolla* 4-lobed. *Receptacle* paleaceous, chaff rigid, mostly longer than the flowers. *Pappus* cup-shaped.

Herbaceous, prickly or asperate; leaves of the stem often connate at the base; capitulum terminal.

SPECIES. 1. *D. sylvestris.* Introduced; now becoming naturalized.

A genus indigenous to the South of Europe. The *D. fullonum* with hooked chaff is used in dressing woollen cloth.

131. GALIUM. *L.* (Bed-straw. Cleavers.)

Calix 4-toothed. *Corolla* monopetalous, 4-cleft, flat. *Seeds* 2, nearly round.

Smooth or asperate; flowers terminal, often corymbosely paniculate, or axillary. Leaves verticillate. Flowers rarely 3-cleft, with 3 stamens.

SPECIES 1. *G trifidum.* 2. *latifolium.* 3. *uniflorum.* 4. *tinctorium.* 5. *asprellum.* 6. *Aparine.* 7. *uliginosum?* 8. *brachiatum,* Pursh. 9. *triflorum.* 10. *hispidulum.* 11. *Bermudianum.* 12. *pilosum.* 13. *circæzans.* 14. *boreale.* 15. *cuspidatum,* Elliott, (with the segments of the corolla caudate.)

The principal part of this numerous genus, exists in Europe, several are alpine, there are also species in Siberia, Barbary, and at the Cape of Good Hope; 7 in Peru, and 1 at Montevideo; 1 in the forests of Arabia, described by Forskall, and another around the ruins of Jerusalem; in the isle of Crete there are 2 species with shrubby stems. Several species of Galium, like the Madder (*Rubia tinctorum*) to which they are nearly allied, afford scarlet or orange dyes. Of these the *G. tinctorium* and *G. boreale?* are made use of by the aborigines of North America, in the same manner as the Peruvians did of the *G. corymbosum.* (V. Flor. Peruv. i. p. 59.)

132. RUBIA. *L.* (Madder.)

Calix 4-toothed. *Corolla* campanulate, 4 or 5 cleft. *Berries* 2, roundish and smooth, single-seeded. (*Stamina* 4 or 5.)

Habit similar to *Galium.*

SPECIES. 1. *R. Brownei.* From Carolina to Florida.

Of this genus, besides the above, there are 2 species indigenous to the continent of Europe; 1 to Chili, 1 to Madrass in India, 1 to Minorca, and 2 to Majorca, of which the *R. cordifolia* is also common to Siberia, China, Japan, and the Cape of Good Hope; in the Isle of Teneriffe there exists a shrubby species of Rubia.

133. SPERMACOCE. *L.*

Calix 4-toothed. *Corolla* funnel-formed, 4-cleft. *Seeds* 2, each bidentate.

Flowers axillary, verticillate, more rarely corymbose or terminally capitate.

Species. 1. *S. tenuior.* 2. *glabra.* 3. *Diodina.* 4. *involucrata.*

Of this genus there are 6 species in India, and 20 in North and South America, chiefly within the tropics. The *S. verticillata* is a shrub common to Jamaica and Africa.

134. DIODIA. *Gronovius. L.*

Calix bifid. *Corolla* tubular, funnel-formed, 4-cleft. *Capsule* 2-celled, cells 1-seeded.

Mostly procumbent; rarely scandent; stem herbaceous or suffruticose, flowers usually solitary and axillary.

Species. 1. *D. virginica.* 2. *tetragona.* 3. *hirsuta.*

An American genus, of which 5 other species are indigenous to the West India islands.

135. OLDENLANDIA. *L.*

Calix 4-parted, superior. *Corolla* 4-cleft, (4-petalled, Persoon.) scarcely tubulose. *Capsule* 2-celled, many-seeded.

Mostly herbaceous, many species annual; flowers axillary or terminal, sessile or pedunculate, peduncles 1 or many-flowered; in some species the flowers are umbellate.

Species. 1. *O. glomerata.* 2. *uniflora.* Probably a mere variety of No. 1.

This genus appears to be almost equally divided betwixt India and the tropical regions of America. The genus *Hedyotis* to which Mr. Elliott is inclined to refer the *O. glomerata* is also almost equally divided betwixt India and South America.

136. HOUSTONIA. *L.*

Calix 4-toothed. *Corolla* of 1 petal, funnel

form, 4-cleft. *Capsule* 2-celled, many-seeded, half superior, opening transversely.

Flowers terminal, rarely axillary; stem dichotomous, mostly quadrangular.

Species. 1. *H. patens*, El. (*pusilla.*) The smallest and earliest flowering species of the genus. Leaves petiolate, ovate, acute, margin and angles of the stem a little scabrous; segments of the corolla short, rounded, obtuse. ⊙. 1 to 2 inches high. Flowers saturate blue. 2. *cærulea.* Smooth; radical leaves ovate, spathulate; stem dichotomous, peduncles 1-flowered, very long; segments of the corolla oblong-oval, with acute points. 3. *serpyllifolia.* 4. *tenella*, Pursh. 5. *rotundifolia.* Peduncles axillary. 6. *longifolia*, (*H. angustifolia*, Mich.)

7. **tenuifolia.* Smooth; stem erect, divaricate, extremely branched; leaves very narrow and linear; ramuli subtrichotomous, flowers terminal, subfastigiate, corymbulose, long and setaceously pedunculate.

Stem about 6 inches high, dichotomously subdivided 4 or 5 times. Leaves an inch long, scarcely a line wide, nearly of an equal breadth, and somewhat acute. Peduncles setaceous, from half an inch to 1 inch long, 1 to 3 and 4-flowered. Calix 4-cleft, setaceous. Flowers small. —Near the confluence of Pidgeon river, and the French Broad, Tennessee, on dry gravelly hills.

8. *purpurea.* Flowers subcampanulate, stamens exserted beyond the tube of the corolla

With the exception of the splendid *Houstonia coccinea*, of Mexico, this genus is thus far confined to the United States.

137. POLYPREMUM. *L.*

***Calix* 4-parted. *Corolla* 4-cleft, rotate, bearded at the orifice. *Stamina* included. *Capsule* compressed, 2-celled, many-seeded.**

Herbaceous, erect, or procumbent, dichotomous; leaves opposite, membranaceously connate; flowers small, dichotomal and terminal, each surrounded by a bracteal involucrum.

Species. 1. *P. procumbens.* A genus consisting of but a single species, peculiar to the United States, and extending from Virginia to the Gulf of Mexico; nearly alallied to *Houstonia*, differing principally in habit.

138. MITCHELLA. *L.* (Partridge-berry.)

Flowers by pairs upon the same germ, superior.—*Calix* 4-toothed. *Corolla* funnel-form, tube cylindric; limb 4-parted, spreading villous on the inner side. *Stamina* 4, scarcely exserted. *Stigma* 4-cleft. *Berry*, by the union of the 2 germs, didymous, 4-seeded.

An herbaceous repent evergreen; flowers by pairs terminal or axillary, berry scarlet, hibernal, edible, but insipid.

SPECIES. 1. *M. repens.* The only species known; extending in the shade of forests from Canada to Georgia. The genus *Mitchella* appears to be somewhat allied to *Aegiphila* or *Nuxia*, and also to *Symphoricarpos.*

139. LINNÆA. *Gronovius. L.*

Calix double: that of the fruit 2-leaved, of the flower 5-parted, superior. *Corolla* turbinate, subcampanulate, 5-lobed. *Stamina* somewhat didynamous. *Stigma* globose. *Berry* small, ovate, dry, 3-celled, cells 2-seeded.

Herbaceous, creeping, and sempervirent; leaves opposite; surculi erect, the upper part naked and 2-flowered; fruit crowned by the permanent calix.

SPECIES. 1. *L. borealis.* A small plant dedicated by Gronovius to the name of Linnæus, who discovered it in the wilds of Lapland; it was afterwards found in Sweden, in Germany, and in Scotland, where it had been overlooked or neglected, and it is now also met with in all the northern regions of the American continent, from the mountainous banks of the Susquehannah, to the arctic circle: (abundant in the shady pine forests of Lake Huron.) In America, the *Linnea* is confined to the dark forests of the *Abies canadensis*, *A. nigra*, and *A. balsamea*, accompanied by the *Trientalis*, *Polygala paucifolia*, *Mitchella*, and *Gaultheria*. Unchanged by the vicissitudes of climate, it always apparently presents the same character, whether growing in the forests of America or of Europe, and in every system it stands alone, without distinct affinity to any other genus. Bauhin, indeed, after the manner of the older botanists, judging from the mere form of the corolla, referred it to *Campanula*, and called it *C. serpyllifolia.*

†† *Apetalous.*

140. ELÆAGNUS. *L.* (Oleaster.)

Calix 4-cleft, campanulate, coloured on the inner side. *Stamina* alternating with the divisions of the calix; anthers subsessile. *Style* short. *Drupe* dry, 1-seeded, marked with 8 furrows.

Trees or shrubs; flowers axillary, solitary or aggregate, sometimes polygamous. In the *E. angustifolia*, cultivated in Europe and Africa, for the fine odor of its flowers, the calix occurs sometimes from 5 to 8-cleft, with the same irregular number of stamens. V. *Desfont.* Flor. Atlant. i. p. 144.

Species. 1. *E.* **argentea.* Unarmed; leaves undulated, oval-oblong, rather acute, on either side smooth, and covered with silvery scales; flowers aggregate, nodding, berry rather large, subglobose, covered with silvery scales.

Obs. Drupe cartilaginous, roundish-ovate, with 8 grooves; nucleus subcylindric, surrounded by a tenaceous woolly integument.

Hab. At Hudson's Bay, and on the argillaceous broken banks of the Missouri, near Fort Mandan. A shrub from 8 to 12 feet high, apparently dioicous, producing a dry farinaceous edible drupe, about the size of a small cherry.

This genus is so nearly allied to *Hippophae*, as well as to another which I am about to propose, that it is to be regretted any artificial system should ever separate them. They are, however, distinctly dioicous, having male and female flowers of different structure. Of this genus, besides the above, (which appears to be more nearly related to the *E. macrophylla* of Japan, than the *E. latifolia*), there are 10 species; 1 in the South of Europe, another in Russia and the East, another in Egypt, and a 4th in Ceylon, with 6 in Japan.

††† *Polypetalous.*

141. LUDWIGIA. *L.*

Calix 4 parted, persistent, superior. *Corolla* 4-petalled, or 0. *Capsule* 4 sided, 4-celled, inferior, many-seeded.

A genus chiefly consisting of herbaceous plants, with alternate or opposite simple leaves, and flowers which are solitary and axillary, or tending to be terminally aggregated. Petals generally yellow and caducous.

Species. § i. Petaliferous.—1. *L. macrocarpa.* 2. *alata,* Ell. 3. *sphærocarpa.* E. 4 *cylindrica,* E. 5. *lanceolata.* E. 6. *hirsuta.* 7. *angustifolia.* 8. *virgata* 9. *Jussiæoides.* 10 *capitata.* 11 *pedunculosa.*—§ ii. Apetalous.—12. *microcarpa.* 13. *mollis.*

A genus confined to the United States, with the exception of 2 species in India, growing principally in the Southern States, on the margins of ponds and swamps, the *L. macrocarpa* being the only species which extends beyond the 38th degree of north latitude, except perhaps the *L. hirsuta* in a few peculiar localities.

142. ISNARDIA. *L.*

Calix campanulate, 4-cleft. Petals 0, or minute. Capsule surrounded by the base of the calix, 4-sided, 4-celled, many-seeded.

A creeping aquatic herb; leaves opposite; flowers minute, axillary, opposite and sessile.—With the habit of *Peplis,* but more closely allied to *Ludwigia.*

Species. 1. *I. palustris.* (*Ludwigia nitida,* Mich.) Common to Europe and America, from Canada to the West Indies. Of this genus there is only another species in Peru.

143. CORNUS. *L.* (Cornel. Dog-wood.)

Flowers sometimes aggregated in a 4-leaved involucrum.—Calix 4-toothed. Petals 4, small, broader at the base. Drupe inferior, not crowned by the calix; nut 2-celled, 2-seeded.

Small trees or shrubs; leaves opposite, without stipules, in one species alternate; flowers in some species disposed in terminal corymbs, coming out later than the leaves, in others earlier, collected in umbells or capituli subtended by a common 4-leaved involucrum, which is sometimes large and coloured, (as in *C florida, C. suecica,* and *C. canadensis.*) Corculum of the seed long, involved in a carneous perisperm.

Species. 1. *C. canadensis.* 2. *florida.* 3. *circinata.* 4. *sericea.* 5. *asperifolia.* 6. *stricta.* 7. *sanguinea.* 8. *alba.* (The fruit of this species, though bitter and unpalatable, is eaten by the savages of the Missouri, from whence it seems to extend across the continent, and appears again in Siberia.) 9. *paniculata*. 10. *alternifolia*. Of this genus there are 2 other species in Europe, and 2 which are common to that continent, Asia, and America.

§ II. OVARIUM SUPERIOR.

†. *Monopetalous.*

144. CENTUNCULUS. *L.* **(Bastard Pimpernel. Chaff-weed.)**

Calix 4-cleft. *Corolla* 4-lobed, tubulose, persistent, border spreading. *Stamina* short, naked. *Capsule* 1-celled, dividing hemispherically, many-seeded.

Annual; leaves alternate, rarely opposite; flowers solitary, axillary, sessile, or minutely pedunculate, frequently 5-cleft, and with 5 stamens. Scarcely distinct from *Anagallis.*

Species 1. *C. lanceolatus.* (*Anagallis ovalis*, Flor. Peruv vol. ii. p. 8. t. 115. *f. a.*) Stem irregularly angul 3 to 5 inches high, simple, or alternately branche lower joints often sending out roots. Leaves oval, or lanceolate, acute at either extremity. Flowers minu pedunculate, (peduncle about half a line.) Calix as v as the corolla often 5 parted, segments linear and [illegible]nated. Corolla tubular, scarcely ever expanding, divisions lanceolate, acute, tube wide at the base.—In Carolina. 2. **minimus.* Stem simple, or sometimes with a single branch from near the base, obsoletely angular. Leaves alternate, spathulate-ovate, acute; flowers nearly sessile, often 5-cleft and pentandrous.—In depressed, and inundated situations on the margins of ponds, near Fort Mandan on the Missouri.—Abundant. 4 to 6 inches high; flowering in July. Probably both these plants are mere varieties of the same species, which may then be considered indigenous to Europe and both the continents of America.

145. PLANTAGO. *L.* **(Plantain.)**

Calix 4-cleft. *Corolla* 4-cleft; border reflected. *Stamina* mostly exserted, very long. *Capsule* 2-celled, opening transversely.

Leaves all radical; flowers in densely spiked scapes, each subtended by a bracte.

SPECIES. 1. *P. major*. 2. *lanceolata*, (introduced, now every where naturalized.) 3. *cordata*. 4. *cucullata*. 5. *interrupta*. 6. *maritima*. 7. *caroliniana*. § II. Stamina not exserted. Capsule 2-celled, 2-seeded. Stemless. (Allied to PSYLLIUM.) 8. *virginica*. Segments of the corolla rostrately connivent. 9. **gnaphaloides*. (*P. Lagopus*, PURSH. a name already applied to a very distinct species). Every where covered with a silky villus; leaves linear-oblong, entire; stamina included; calix rigid.—On the summits of high and gravelly hills; commencing to appear near the confluence of the river Jauke, and the Missouri. 10. **pusilla*. Minutely pubescent: leaves linear, entire, narrower towards the base, and a little carnose, shorter than the scape; scape round, filiform; spike, subcylindric, interrupted; calix rigid; bractes ovate, acute; stamina included. —On arid saline hills near the Missouri. Flowers in May. Only 1 to 3 inches high. ☉.

P. aristata, MICH. (One or two plants only out of many others which I obtained from seeds, gathered in Upper Louisiana, produced the long subulate bractes described by Michaux, from whence his specific name is derived.)

P. elongata, Pursh, in Suppl. ii. p. 729. *P. pauciflora*, of the same, i. p. 99. On all the sea-coasts from Labrador to Florida.

11. **glabra*. Leaves ovate, denticulate, smooth; scape slender, somewhat compressed, nearly equal to the leaves; flowers scattered; bractes ovate, acuminate.—In arid soils, near Fort Mandan.

About two-thirds of this extensive genus, as enumerated by Persoon, are indigenous to Europe, (more particularly to the south,) and Northern Africa, (Barbary, &c.) there are also species at the Cape of Good Hope, in Peru, and other parts of South America, also in Siberia. To the subdivision *Psyllium*, constituted a genus by Jussieu, appertain several branching, shrubby, and one arborescent species.

146. CALLICARPA. *L.* (Bermudian Mulberry.)

Calix 4-cleft. *Corolla* tubular, border 4-cleft. *Stamina* exserted. *Berry* 4-seeded.

Mostly tomentose shrubs, with opposite leaves, and axillary subverticillate flowers; peduncles dichotomous or cymose, many-flowered; cymes in some species terminal as well as axillary.

Species. 1. *C. americana.* (Calix 4-toothed; berries purple, edible; but scarcely wholesome.) Of this genus, besides the present species, there are 2 others in the island of Jamaica, 1 in Carthagena, 2 in Peru, 1 in Japan, and 5 in India.

147. LYCIUM. *L.* (Box-Thorn.)

Calix urceolate short, 4 or 5-cleft, or 4 to 5-toothed. *Corolla* longer, tubulose, border erect, 4 to 5-lobed, or flat, and 4 to 5-parted; orifice, (or margin of the tube) closed by the beard of the filaments. *Stamina* exserted. *Berry* roundish, 2 celled, many-seeded; seeds reniform.

Shrubs for the most part spiny; ramuli pungently terminated; leaves alternate, sometimes fasciculated; flowers axillary, solitary, or by pairs.

Species. 1. *L. carolinianum.* (Without thorns.)—Of this genus there are 3 species indigenous to the South of Europe, 2 of them at the same time common to Northern Africa, with two others peculiar to this portion of Africa; 4 to the Cape of Good Hope; 1 species and a permanent variety were discovered by Pallas in the deserts of Tartary, contiguous to the shores of the Caspian sea; 2 if not 3 other species appear to be peculiar to China; and 6 to Peru.

148. CENTAURELLA. *Michaux.* CENTAURIUM. *Persoon.*

Calix 4 parted, appressed. *Corolla* subcampanulate, 4-parted; segments somewhat erect. *Stigma* thick, glandulous, and partly bifid. *Capsule* 1-celled, 2-valved, many-seeded, surrounded by the persistent calix and corolla.

Small annuals; appearing almost leafless; leaves minute, opposite, sessile, subulate. Flowers subpaniculate.

Species. 1. *C. verna.* 2. *æestivale*, Pursh. Probably a mere variety of the following. 3. *paniculata.* (*Bartonia tenella*, Muhlenberg.)

A North American genus, nearly allied to *Gentiana.*

149. EXACUM. *L.*

Calix deeply 4-parted. *Corolla* 4-cleft, tube globose. *Capsule* bisulcate, 2-celled, many-seeded, opening at the summit; cells 2-seeded.

Flowers axillary, or dichotomously corymbose and terminal, with a single flower in the bifurcations. Several species have a 5-cleft corolla, with 5 stamens.

Species. 1. *E. pulchellum*, Pursh. Is not this plant a *Sabbatia?*—Of this genus there are 4 species described by Persoon, as existing within the tropical regions of America, 1 in Europe, with 11 others in India and Africa, principally at the Cape of Good Hope.

150. SWERTIA. *L.* (Felwort.)

Calix 4 or 5-parted. *Corolla* rotate, tube very short, border flat, 4 or 5-parted, segments lanceolate, with 2 nectariferous ciliate pores at the base of each. *Germ* attenuated into a short style, terminated by 2 stigmas. *Capsule* 1-celled, 2-valved.

Habit similar to *Gentiana*. Flowers axillary and terminal, peduncles often many-flowered.

Species. 1. *S. fastigiata*, Pursh. 2. *pusilla*, P. (*S. tetrapetala?* of Pallas.)—§ ii. Ceratia. Corolla subcampanulate, calcarate at the base.—3. *corniculata*.

Of Swertia, besides the above, there are but 7 species described in Persoon, and of these, the *S. difformis* appears referable to *Sabbatia*. Europe produces 1 species, (the *S. perennis*,) Arabia Felix, another, Siberia 2, as well as the *S. corniculata*, but almost specifically distinct from the American plant; there is 1 species also in the Andes of Peru. All the species of this genus appear to be alpine.

151. FRASERA. *Walter. Michaux.*

Calix deeply 4-parted. *Corolla* 4-parted, spreading; segments oval, with a bearded orbicular gland in the middle of each. *Capsule* compressed, partly marginated, 1-celled. *Seeds* few, (8 to 12) imbricated, large, elliptic, with a membranaceous margin.

Biennial; stem tall; leaves verticillate; segments of the corolla furnished with very conspicuous ciliated glands.

SPECIES. 1. *F. Walteri*. From Canada to Carolina. In the dry and open woods of western Pennsylvania and New-York, in certain localities abundant. It is there called Columbo-root, and appears to be a tonic no way inferior to the *Gentiana lutea*.

A genus peculiar to the United States.

152. OBOLARIA. *L.*

Calix 0, or in the form of 2 bractes. *Corolla* campanulate, 4-cleft, segments entire, (the margin sometimes crenately torn.) *Stamina* equal, proceeding from the clefts of the corolla. *Stigma* emarginate. *Capsule* ovate, 1-celled, 2-valved, many-seeded; seeds minute.

A very small vernal plant, with a simple stem, and opposite leaves; flowers sessile, terminal and marcescent, collected by pairs or by threes towards the summit of the stem; stigma minutely bifid. (Bitter, and probably tonic.)

SPECIES. 1. *O. virginica*. Perennial? about 3 or 4 inches high, with a small branching root; leaves thick, green, almost carnose, frequently purplish on the under side; flowers bluish-white, subtended by foliaceous bractes.

Peculiar to North America.—In the neighbourhood of Philadelphia, rare.—Dr. W. P. Barton. Near West Chester, (Pensylvania.)—Dr. W. Darlington. Abundant in the shady forests of Lake Erie, (Ohio.) In the revision and arrangement of this genus, which distinctly appertains to the Natural Order *Gentianeæ* of Jussieu, I am happy to have been corroborated by the interesting remarks of Dr. W. Darlington, who for four years in succession has been in the habit of examining the *Obolaria*.

†† *Flowers tetrapetalous.*

153. AMMANNIA. *L.*

Calix 1-leaved, striate, 8-toothed, inferior. *Corolla* of 4 petals, or none, inserted upon the calix. *Capsule* 4-celled, many-seeded.

Subaquatic herbs with opposite leaves; flowers very small, axillary, sessile, or shortly pedunculate, opposite, and sometimes almost verticilllate. In *A. indica*, and *A. verticillata*, the calix is 4-toothed, and shorter than the capsule.

SPECIES. 1. *A. ramosior* 2. *humilis.*—Of 9 species now enumerated, including the above, 3 are indigenous to India, 1 to Italy, 1 to Senegal, and 2 to the West Indies.

154. PTELEA. *L.*

Calix 4-parted, inferior. *Petals* 4, spreading. *Stigmata* 2. *Capsule* (samara) compressed, membranaceous, with a broad and circular margin, 2-celled, 2-seeded.

A shrub with alternate leaves; mostly ternate, rarely 5-leaved; flowers almost corymbose, axillary and terminal, odorous. Each cell of the germ 2 seeded, one of the seeds habitually abortive; stamina sometimes 6, with 5 petals, and the samana 3-celled, 3-winged.

SPECIES. 1. *P trifoliata.*—A North American genus, now reduced to a single species, nearly allied to the *Blackburnia* of the island of Norfolk in the Pacific. The *P. monophylla* of Lamark, appears to be the *Mylocarium ligustrinum!* Probably a bad specimen in fruit and without flowers.

††† *Apetalous.*

155. RIVINA. *L.*

Calix 4-parted, persistent. *Petals* 0. *Berry* 1-seeded. *Seed* lentiform, scabrous. (*Stamina* 4, 8, and 12.)

Stems somewhat shrubby; leaves entire, often acuminated; flowers in axillary racemes. (Stem in *R. levis*, herbaceous.)

SPECIES. 1. *R. levis. v. s.* in the Herbarium of Z. Collins, Esq. communicated by Muhlenberg, and said to be collected in Pennsylvania. Possessing very much the habit of *Phytolacca decandra.*

There are 5 species of this genus enumerated by Persoon, all indigenous to the tropical parts of America on either side the equator. Of the *R. levis* there is, on the authority of Lamark, a distinct variety in the island of Madagascar.

156. CAMPHOROSMA. *L.*

Calix urceolate, 4-parted, alternate segments larger. *Corolla* 0. *Stamina* exserted. *Style* bifid. *Capsule* 1-seeded, covered by the calix.

Stem shrubby or herbaceous, branching and diffuse.

thickly covered with minute linear leaves; flowers axillary.

SPECIES. 1. *C. glabra?* Said to have been found on the American sea-coast.—A genus of 4 species, (Persoon) inhabiting arid soils in Spain, Tartary, Italy, Helvetia? and the Cape of Good Hope.

157. SYMPLOCARPUS. *Salisbury.* POTHOS *fœtida,* Mich. (Skunk-cabbage.)

Spatha **ventricose-ovate, acuminate.** ***Spadix*** **roundish, covered with hermaphrodite flowers.** ***Calix*** **deeply 4-parted, persistent, segments cucullate, truncate, becoming thick and spongy.** ***Petals*** **0.** ***Style*** **pyramidal, 4-sided;** ***stigma*** **simple, minute.** ***Seeds*** **solitary, immersed in the spongy receptacle.**

Stemless and subaquatic; leaves very large, strongly veined and entire, preceded by conspicuous sheathing stipules; scapes radical, appearing before the leaves; spatha discoloured; calix, style, and filaments persistent, enlarging with the spongy receptacle.

Root verticillately fibrous, truncate. Leaves smooth, and green, ovate-cordate, enlarging, protected by large, glaucous, spathulate-linguiform, veinless bractes. Spatha ovoid, roundish, cucullate, obliquely acuminate, point coarctate, plaited, involutely auriculate at the base, thick and spongy, livid purple, blotched and spotted with pale green. Spadix pedunculate, simple, almost spherical. Bractes none. Flowers tessellately imbricate, adnate. Calix 4-parted, divided to the base, segments cucullate, compressed at the apex, emarginated, at length becoming very thick. Petals none. Stamina 4, opposite the divisions of the calix; filaments subulate, flat; anthers exserted, short, oblong-oval, 2-celled. Style thick, quadrangular, acuminated; stigma minute, pubescent, shorter than the stamina. Germ immersed, 1-seeded. Seed naked, large, round, inclosed in the common receptacle. Corculum small, involute, erect, umbilicately attached to a large solid, carneous perisperm.†

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† The seed of the *Symplocarpus* does not appear to possess any thing like a proper cotyledon, the embryo formed in the exact posture of the growing plant, (with the radical downwards), differs not from it in any particular but that of size. In

Species. 1. *S. fœtida.* Well known as a rank and offensive weed throughout the United States, from Canada to Carolina. The genus *Pothos* to which this plant is allied, though very distinct, exists almost exclusively within the tropical parts of America.

158. ALCHEMILLA. *L.* (Ladies-mantle.)

Calix tubulous, border spreading, 8-cleft, segments alternately smaller. *Petals* 0. *Stamina* very small. *Germ* 1; *style* 1, lateral, from the base of the germ. *Stigma* 1. *Seed* 1, covered by the connivent calix.

Herbs with palmate or subdigitate leaves; flowers corymbose axillary and terminal.

Species. 1. *A. alpina.* On the mountains of New Hampshire. A plant common to the alpine regions of Europe. This genus, containing 6 species, with the exception of 1 at the Cape of Good Hope, and another in New Granada, is confined to Europe.

Order II.—Digynia.

159. APHANES. *L.* (Parsley Piert.)

Calix 8-cleft, alternate segments minute. *Petals* 0. *Stamina* minute. *Styles* 2. *Seeds* 2,

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place of a cotyledon there is a sheathing stipule similar to that which is ever after produced; in fact it is viviparous. The embryon is seated in a small umbilical or hemispherical depression, in the upper end of what may be called a *vitellus* rather than a perisperm, judging from its functions; this callus, or seminal tubercle is roundish and turbinate, nearly as large as a filbert nut, very solid and carneous, possessing in a high degree the alliaceous fœtor of the grown plant; the mutual point of attachment subsisting betwixt this body and the embryon is at first a minute and nearly central funiculus which enlarges and becomes more distinct during the progress of germination; but what appears to be most singular in it, is the length of time which it continues attached to the growing plant, apparently inert at the base of the caudex for twelve or even eighteen months.

covered by the connivent calix, 1 of them sometimes abortive. (Stamina 1, 2, and 4.)

Small herbs with trifid or biternately divided leaves, sheathing at their base; flowers sessile, in axillary clusters, or terminal and dichotomously corymbose. In *A. orbiculata* the leaves are round and lobed.

SPECIES. 1 *A. arvensis.* In the fields of Virginia. CLAYTON. (Introduced?)

Besides the preceding European species there are 3 others indigenous to the alpine mountains of Peru.

160. HAMAMELIS. *L.* (Witch-hazel.)

Calix **4-cleft, persistent, with 3 bractes.** ***Petals*** **4, long and linear, with a short dilated filament at the base of each. Filaments and anthers united:** ***anthers*** **2-celled, each cell having a vertical valve.** ***Capsule*** **coriaceous, (nut) 2-celled, 2-lobed, 2-awned, apex 2-valved, valves cleft.** ***Seeds*** **2, arillate.**

A small tree with the habit of *Alnus;* leaves alternate, stipulate, oblique at the base; flowers sessile, by threes, in axillary or lateral pedunculate clusters; calix pubescent, foliaceous, and persistent; petals ligulate, alternating with the stamina; capsule indurated, half inclosed in the base, of the persistent calix, bursting elastically; seeds arillate, black and shining; corculum flat, inclosed in a carneous perisperm, radicle descendant, opposite to the hilum.

SPECIES. 1. *H. virginica.* From Canada to Florida. β. *macrophylla,* leaves suborbiculate cordate, with elevated scabrous spots on the under side.—In Georgia, PURSH. Catabaw mountains, (North Carolina) *N.* γ. **parvifolia,* leaves smaller, oblong obovate, upper part undulately and grossly crenate, the under side pubescent, somewhat hirsute; segments of the calix oblong, stamens and perigynous filaments often nearly equal.—A shrub every way smaller than the common *H. virginica,* with the branches nearly erect, calix somewhat coloured and diaphanous, petals bright yellow. From the mountains of Pensylvania, *v. v.* in Hort. Landreth, Philadelphia.

The flowers of the *Hamamelis,* like those of the Natural Order *Amentaceæ,* to which it is somewhat allied, appear either in the winter or very early in the spring, and in some of the varieties they are odorous. The under side of the leaves, and more sparingly the upper, as in *Fother-*

gilla, is clothed with a very short stellate pubescence. The fruit of the *Fothergilla*, as was long ago sagaciously remarked by the celebrated A. L. Jussieu, is almost exactly similar to that of the *Hamamelis*, but in the flowers there exists a strange disparity; by the intervention of the *Puchysandra*, however, which appears more properly referable to the *Amentaceæ*, than the *Euphorbiaceæ*, and at the same time allied both to *Hamamelis* and *Fothergilla*, we have something like a connected series. In these 3 genera, the anthers and filaments are united, the anthers also become papyraceous, and are for a considerable length of time persistent, not deciduous as in the *Berberides*. From the *Amentaceæ*, they differ in possessing a perisperm, and the *Hamamelis* is excluded from the 15th class of Jussieu by the existence of petals, but this exception is scarcely universal, as the order in question includes *Comptonia*, described as having 6 petals, at all events, an interior and dissimilar calix. Wherever these 3 contiguous genera may be placed, either as a distinct order, (FOTHERGILLEÆ) or as a neighbouring section, they cannot but be considered as closely allied to the *Amentaceæ*, notwithstanding the singular construction of the anthers in the genus *Hamamelis*, which is indeed the sole character by which it is in any manner allied to the *Berberides*, the carneous perisperm being equally common to the *Euphorbiaceæ*. There is some reason to suspect that the genus *Hamamelis* is polygamous, independent of the mistake of Linnæus in confounding this genus with *Fothergilla*. The variety, for instance, which I have designated, γ. **parvifolia*, although flowering freely every year, has never produced seed since transplanted into a garden out of contact with other individuals. This subject, however, requires more general and accurate examination. The three genera proposed are thus far exclusively confined to North America.

161. SANGUISORBA. *L.* (Great Burnet.)

Calix 2-leaved, inferior, resembling bractes. *Corolla* 4-cleft, superior. *Capsule*, between the calix and corolla, 2 seeded.

Herbaceous; leaves unequally pinnate, stipules growing to the base of the petiole; flowers capitate terminal.

SPECIES. 1. *S. canadensis*. 2. *media*. Probably a mere variety of No. 1. Of this genus there are but 2 other species, 1 in Europe and the other in Algiers (Africa.)

Order 4.—TETRAGYNIA.

162. MYGINDA. *Jacquin.* *L.*

Calix small, 4-parted. *Corolla* deeply 4-parted or of 4 petals. *Stigmas* 2 or 4. *Drupe* globose, 1-seeded.

Shrubs with opposite leaves; peduncles axillary, 2 or 3-flowered; flowers minute.

SPECIES. 1. *M. Myrtifolia.* (*Ilex myrsinites*, PURSH.) Found on the North-west coast, and on the Rocky mountains, by Captain M. Lewis.

A genus confined to the tropical parts of America, with the exception of the present species.

163. ILEX. *L.* (Holly.)

Calix minute, 4 or 5-toothed. *Corolla* rotate, 4-parted. *Style* 0; *stigmata* 4. *Berry* 4-seeded.

Small trees or shrubs; leaves alternate, mostly evergreen, often spinosely or pungently toothed or serrated; peduncles axillary, many-flowered; flowers often polygamous; berries a long time persistent, usually scarlet.

SPECIES. 1. *I. opaca.* *β. laxiflora*, (*I. laxiflora*, appears to be a mere variety of *I. opaca.*) 2. *Cassine.* 3. *vomitoria.* (Used sometimes as a substitute for Tea; also by the savages in their superstitious ceremonies.) 4. *angustifolia.* Leaves mostly entire and mucronate. From 10 to 15 feet high. 5. *Dahoon.* Leaves mostly entire.—§ II. Leaves deciduous. 6. *prinoides.* Leaves deciduous, eliptic-lanceolate, acute at both extremities, from about the middle to the point lightly serrate, the under side pubescent; berries large, and nearly solitary, nuts grooved.—Closely allied to *Prinos.* 7. *canadensis.* Genus doubtfull.

Europe affords but 1 species of this genus, the *I. Aquifolium*, common also to Japan, but certainly not to America as remarked by Persoon, as it is even very difficult to cultivate; in Japan there are 7 other species, 1 at the Cape of Good Hope, 1 in India, 2 in the island of Madeira, 1 in the isle of Mauritius, 3 in the West Indies, a doubtfull species in Guianne, and another (*Paltoria*) in the high mountains of Peru, allied to *Myginda.*

164. SAGINA. *L.* (Pearl-wort.)

Calix 4-leaved. *Petals* 4. *Capsule* 4-celled, 4-valved, many-seeded.

Small herbs; flowers nearly solitary, terminal and axillary, upon long peduncles, petals often caducous.

Species. 1. *S. procumbens.*—An European genus.

165. TILLÆA. *L.*

Calix 3 or 4-parted. *Petals* 3 or 4, equal. *Capsules* 3 or 4, two or many-seeded. *Stamina* sometimes 8, 4 sterile.

Small succulent herbaceous plants, allied to *Crassula* and *Sedum;* leaves opposite, rarely ternate; flowers minute, axillary, cymose, or umbellate.

Spceies. 1 *T? *cymosa* (*Sedum pusillum,* Mich.) Erect; stem verticillately or trichotomously branched from the base; leaves alternate, almost cylindric, oblong; flowers subdichotomously cymose, alternate and pedicellate, octandrous; capsules connate, 2 to 4 seeded, opening externally.

Annual. Two to 4 inches high, "flowers white, octandrous," Mich. Capsules 4, united, never separable, with subulate and at length long mucronate points, opening on the under side. Seeds germinating as soon as they fall, the young plants remaining green throughout the winter, in these the leaves are oval-oblong and succulent. Branches about 4 from the same point.—Collected in winter on the "Flat-Rock," above Camden in North Carolina, growing with mosses in the wet and gravelly excavations of the rock, in the same place where it was discovered by Michaux, and hitherto found in no other spot, as Mr. Pursh evidently confounds this plant with the *S. pulchellum,* when he speaks of its growing on the east banks of the Shenandoah river in Virginia, the latter being there sufficiently abundant, and yet he quotes the remote habitat of Michaux, "on rocks around Knoxville," (Tennessee) and indicates by his mark (+) that he has never seen *S. pulchellum,* notwithstanding its prevalence around Harper's Ferry, &c. &c. in Virginia.

Having never seen this plant in flower, I am unable to ascertain its genus; it is, however, at the same time much more nearly related to *Tillæa,* than to *Sedum.* In the structure of the capsule it entirely differs from every other plant in the Natural Order *Sempervivæ.*

Of *Tillæa* there are in America besides the above, 1 species in Peru, 4 also in Europe, and 4 at the Cape of Good Hope.

166. POTAMOGETON. *L.* (Pond-weed.)

Calix 4-leaved. *Corolla* 0. *Style* 0. *Seeds* 4.

Leaves sheathing, those of the stem often alternate, floral leaves mostly opposite; flowers spiked, terminal or axillary; ramuli and spikes having frequently 2 sheathes at the base. Nut 1-seeded, cochleate; embryon erect, exalbuminous, curved or involute.

Species. 1. *P. natans.* 2. *fluitans.* 3. *heterophyllum.* 4. *setaceum.* 5. *perfoliatum.* 6. *lucens.* 7. *crispum.* 8. *gramineum.* 9. *pectinatum.*—A genus of aquatic plants, apparently confined to Europe and North America; those of the latter continent at the same time common also to Europe.

167. RUPPIA. *L.* (Tassel Pond-weed.)

Calix none. *Corolla* none. *Seeds* 4, pedicellate.

A maritime aquatic plant with capillary branches; leaves gramineous, sheathing; on the stem alternate, towards the flower nearly opposite; flowers in a spikelet or spadix, solitary, mostly terminal, distichal, peduncle convolute, stretching or contracting according to the depth of water, after the manner of *Valisneria*; "calix 2-valved, deciduous," Jussieu. Fruit subulate, when mature incurved at the point. Nut gibbous, containing one seed; embryon erect, attached (as in many other plants of the same natural class,) to a germinal body apparently of the nature of the root.†

Species. 1. *R. maritima.* Common probably to every part of the world.

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† Being distinct from the ordinary cotyledons, albumen or perisperm, to distingish it from them I propose the name of *somarhize,* (*somarhiza*) or a radical inactive body affording a temporary nourishment to the embryon with which it possesses a simple vascular connection, but without producing any species of radicles or leaves, often in the form of a cohering callous tubercle, it exists longer than ordinary cotyledons, and differs from an extraneous perisperm in its vascular connection with the embryon.

CLASS V.—PENTANDRIA.

Order 1.—Monogynia.

† *Flower monopetalous, inferior; seeds 4, naked.*
Asperifoliæ.

168. HELIOTROPIUM. *L.* (Turnsol.)

Calix tubulous, 5-toothed. *Corolla* salver-shaped, 5-cleft, with 5 intermediate teeth or plaits; orifice of the tube naked. *Stigma* emarginate.

Spikes recurved, flowers inclined to one side.

Species. 1. *H. indicum.* Apparently native, in the warmer states. 2. *curassavicum.* 3. *europæum?* Around Harper's Ferry, (Virginia.) On the banks of the Shenandoah. Flowers white. Leaves hoary. This genus exists principally in the warmer parts of South America, (Peru and the West Indies) and India, there are also some species in Africa, and 2 in Europe. A few of the species are ornamental and odorous.

169. MYOSOTIS. *L.* (Scorpion-grass.)

Calix 5-cleft. *Corolla* salver-formed, tube short, border flat, 5-lobed, lobes subemarginate; orifice closed with 5 convex, connivent, squamulæ (or small scales.) *Stigma* 1. *Seed* smooth or scabrous.

Flowers mostly disposed in terminal one-sided spikes.

Species. 1. *M. scorpioides.* 2. *arvensis.* 3. *virginiana.* 4. *Lappula.* 5. **glomerata.* Seeds rugose; leaves spathulate-linear, on the stem rather acute, hirsute; spikes pedunculate, axillary, conglomerate, bifid, sessile above; calix extremely hispid; lobes of the corolla entire.

Cynoglossum glomeratum, Pursh. Flor. Am. 2. p. 729. T N. in Fras. Catal. 1813.

Root biennial. Stem erect, entirely simple, 6 to 12 inches high. Radical-leaves villous, spathulate-obovate, obtuse, somewhat hoary; one to one and a half inches long; stem-leaves spathulate-linear, rather hispid and somewhat acute, sessile. Spikes very short, axillary, bifid, pedunculate, peduncles mostly shorter than the leaves, flowers crowded, appearing almost in heads, approximating together towards the summit. Calix deeply 5-parted, villous, and also thickly set with sharp hispid hairs. Corolla white, orifice closed, lobes rounded, entire, nearly flat, rather large; tube constricted near the base. Stamina sessile, included beneath the arched protuberances of the orifice. Stigma entire, capitate. Seeds narrow, ovate, acute, with an elevated scabrous or minutely crenate ridge in the centre.

On arid agillaceous hills around the Great Bend of the Missouri. Flowering in June.

The genus *Myosotis* is chiefly European, at the same time there are species in Peru, at the Cape of Good Hope, in Siberia, 1 species in New Zealand, 1 in Chili, and another in the isle of Bourbon.

170. LITHOSPERMUM. *L.* (Gromwell.)

Calix 5-parted. *Corolla* funnel-form, 5-lobed, orifice open, naked. *Stigma* bifid. *Seed* indurated, shining. (Stamina and style included within the corolla.)

Flowers solitary, axillary, or in terminal bracteate spikes; floral leaves sometimes by pairs.

SPECIES. 1. *L. arvense*. 2. *latifolium*. 3. *angustifolium*. 4. *apulum*.

Of this genus there are 5 species in Peru and the warmer parts of Spanish America, 2 at the Cape of Good Hope, 5 in Egypt and the East, 1 on the nitrose banks of the Volga, (Siberia) 1 around ancient Bagdad in Persia, and another in the isle of Teautea in the Pacific; the rest in Europe and North America. The roots of several species afford a lac for dying and painting.

171. BATSCHIA. *Gmelin. Michaux.*

Calix 5-parted. *Corolla* salverform, rather large, tube straight, much longer than the calix, closed at the base by a bearded ring; orifice naked or partially closed; border orbiculate, nearly flat, segments rounded. *Seed* indurated, shining, (as in *Lithospermum.*)

Flowers yellow or fulvous, axillary, almost fastigiate, in short bracteate spikes; leaves narrow, without collateral nerves.

Species. 1. *B. Gmelini.* 2. *canescens.* Flowers fulvous. 3. **longiflora.* Hirsutely villous, erect; leaves approximating, long and linear, margin reflected; flowers in a fastigiate fascicle; tube of the corolla somewhat pentangular, (often from 10 to 15 lines long) border flat, segments fimbriate-crenate.—Flowers sulphur yellow. In open plains; around the Prairie du Chien, Missisippi, and on the banks of the Missouri to its sources. 4. **decumbens.* Hirsutely villous; stem decumbent; segments of the calix and leaves linear; flowers scattered; lobes of the corolla fimbriate-crenate, shorter than the tube.—Around the Mandan village. Nearly allied to the preceding. In both these species the orifice is partly closed by 5 arched protuberances.

All the species of this genus afford a crimson lac from the root.

172. CYNOGLOSSUM. *L.* (Hounds-tongue.)

Calix 5-parted. *Corolla* funnel-formed, 5-lobed, orifice closed by 5 connivent convex processes. *Stigma* emarginate. *Seed* depressed, affixed to the style on the inner side.

Flowers spiked or clustered, axillary or terminal; leaves villous or hirsute; seeds echinate, muricate or scabrous, rarely if ever smooth.

Species. 1. *C. officinale.* 2. *sylvaticum.* 3. *amplexicaule.* 4. *pilosum?* Erect and hairy; radical leaves spathulate-oblong, the rest lanceolate-oblong, obtuse; flowers axillary, almost spiked, unilateral (or secund); stamina very short included; seed scabrous depressed, oblong, acute, muricate on the margin.—On arid hills above Rapid river, Missouri. Flowering in May; flowers white, small.

Apparently a mere variety of the Peruvian plant; judging from the plate in the *Flora Peruviana.*

Of the genus *Cynoglossum* there are 9 species, chiefly in the South of Europe, several of which are also common to Barbary, besides these there are 4 at the Cape of Good Hope, 6 in Peru and Chili, 5 in Armenia and the East, 1 peculiar to Arabia, 1 to Japan, 1 to Siberia, and another to the summit of mount Lebanon, in Syria.

173. PULMONARIA. *L.* (Lungwort.)

Calix prismatic-pentagonal. *Corolla* funnel-formed, somewhat 5-lobed, orifice open. *Stigma* emarginate.

Flowers almost disposed in terminal corymbs, sometimes racemose. Leaves in the American species and in the *P. maritima* smooth and glaucous, calix short, about half the length of the corolla tube. (MERTENSIA Persoon.)

SPECIES. 1. *P. virginica.* 2. *paniculata.* 3. **marginata.* Small, glabrous, erect; leaves hispid on the margin, on the lower part of the stem oblong-spathulate or oblong-ovate, upper leaves ovate, acute, semiamplexicaule; flowers sub-paniculate; fasciculi few-flowered, axillary and terminal; calix acute, about half the length of the corolla tube.

P. lanceolata. Pursh, Flor. Am. 2. p. 729.

Perennial. Stem nearly erect, and somewhat branched, scarcely a foot high. Radical leaves petiolate, stem leaves sessile, uppermost semiamplexicaule, all glabrous, glaucous, and somewhat carnose. Fascicles or ramuli, pedicellate, a little longer than the leaves, 4, 5, 8, or more flowered. Calix 5-parted, smooth, acute, segments somewhat hispid on the margin. Corolla funnel-formed, much like that of *P. virginica,* and of the same colour, but smaller, lobes entire. Stamina seated around the orifice of the tube.

Nearly allied to *P. virginica,* and also probably to the *P. paniculata,* but the leaves are never acuminated or hairy, but perfectly smooth, except on the margin where there are a few scattered hooked, hispid hairs, often only visible in a dried state. The name of *lanceolata* is so very inapplicable that it appeared to me necessary to alter it.

On arid hills near the confluence of Teeton river, Missouri. Flowering in June.

4. *paniculata.* 5. *sibirica.*

The only 3 genuine species of *Pulmonaria* described are confined to Europe; the American species all arrange under the subdivision MERTENSIA of Persoon.

174. ONOSMODIUM. *Michaux.*

Calix deeply 5-parted. *Corolla* somewhat tubular-campanulate; orifice naked; border ven-

tricose, half 5-cleft, segments connivent, acute. *Anthers* sessile, included. *Style* much exserted, entire, acute.

Leaves longitudinally nerved; flowers in recurved, leafy spikes.

SPECIES. 1. *O. hispidum.* 2. *molle.* A genus peculiar to the United States, but very nearly allied to *Onosma.* Flowers yellowish-white, somewhat like those of *Symphytum.*

175. LYCOPSIS. *L.* (Small Bugloss.)

Calix 5-cleft, inflated or ventricose. *Corolla* funnel-formed, tube incurved; orifice closed with convex protuberances. *Stigma* bifid.

Flowers solitary or collected into a raceme or spike, axillary or terminal. In some species the tube of the corolla is straight.

SPECIES. 1. *L. arvensis.* 2. *virginica.*

This genus exists chiefly in the South of Europe, in Barbary, and in the East, there is also 1 species in Egypt, 1 in Crete, 1 in Chio, and another in Tartary.

176. ECHIUM. *L.* (Viper's Bugloss.)

Calix 5-parted. Tube of the corolla short; orifice naked; border wider than the tube, campanulate, unequal, and obliquely 5-lobed. *Stigma* bifid.

Flowers in simple or paniculated spikes, spikes unilateral. Most of the African species are shrubby.

SPECIES. 1. *E. vulgare.* Very common in Virginia where it is now but too generally naturalized, and there called "Blue-weed."

The genus *Echium* appears to exist chiefly in the more temperate parts of Africa, particularly at the Cape of Good Hope, in Barbary, in the isle of Teneriffe, and in Egypt; there are a few species also indigenous to the South of Europe. According to Gmelin the women of the Don (in Russia) colour their cheeks with the root of the *Echium rubrum.* The same use is also made of the root of *Onosma Echioides* by the women of Tartary.

†† *Flowers monopetalous, inferior, fruit covered.*

177. PHACELIA. *Jussieu.*

Calix 5-parted. *Corolla* subcampanulate, 5-cleft, with 5 longitudinal margined melliferous grooves on the inside. *Stamina* exserted. *Style* filiform, stigmata 2. *Capsule* 2-celled, 2-valved, 4-seeded, each of the valves septiferous in the centre.

Pubescent, leaves alternate, pinnatifid; flowers in unilateral spikes or racemes, simple or bifid, axillary and terminal. In *P. bipinnatifida* the filaments of the stamina are bearded in the middle, as in *Hydrophyllum*.

Species. 1. *P. bipinnatifida.* 2. *heterophylla.* 3. *fimbriata.* Common in alluvial soils, throughout the western parts of Pennsylvania and Ohio. 4. *parviflora,* Pursh. Probably an *Ellisia.*

A genus confined to North America. The *P. fimbriata* is probably an *Ellisia.*

178. HYDROPHYLLUM. *L.* (Water-leaf.)

Calix 5-parted. *Corolla* campanulate, 5-cleft, with 5 longitudinal margined melliferous grooves on the inside. *Stamina* exserted, filaments bearded in the middle. *Stigma* bifid. *Capsule* globose, 1-celled, 2-valved, 1-seeded, 3 other seeds mostly abortive.

Leaves palmate, or pinnatifid; flowers corymbose, corymbs recurved, pedunculate, terminal, or opposite the leaves. The genus *Phacelia* is too nearly allied to *Hydrophyllum* to admit of separation; in an early state there is even no difference in their fruit.

Species. 1. *H. appendiculatum.* 2. *virginicum.* 3. *canadense.* 4? *lineare,* Pursh. Probably not of this genus.—With the exception of *H. magellanicum,* this genus is confined to North America.

179. ELLISIA. *L.*

Calix deeply 5-parted. *Corolla* smaller, funnel-form, 5-cleft, internally naked. *Stamina* not exserted; filaments smooth; anthers roundish. *Stigma* bifid. *Capsule* 2-celled, 2-valved, seated in the stellate or spreading calix, cells 2-seeded; seeds one upon the other? punctate.

Herbaceous, diffuse, and dichotomous; leaves pinnatifid; solitary peduncle or raceme, for the most part opposite the leaf.

SPECIES. 1. *E. Nyctelea.* 2. **ambigua.* Decumbent, and branching; stem glabrous, somewhat glaucous; leaves hirsute, lyrate-pinnatifid, subsessile, segments sublanceolate, angularly toothed or lobed; racemes opposite the leaves, both lateral and terminal; flowers small, scarcely longer than the calix, segments emarginate.

Annual. Stem spreading, 4 to 6 inches high. Calix 5-parted, segments lanceolate-ovate, persistent. Corolla subcampanulate, short, 5-cleft, laminæ short, roundish-oval, emarginate, tube cylindric, upper part angular, with 10 nectariferous pores at its base. Stamina from the base of the tube; filaments short, not exserted; anthers cordate. Style very short, bifid. Ovarium conic-ovoid. Capsule compressed, rounded-oval, 2-valved, 4-celled, 4-seeded; valves septiferous, dissepiments, intersecting, crossing each valve in two directions. Seed roundish, punctate. Peduncles reflected, when in fruit.

In alluvial soils on the banks of the Missouri; common; flowering in April and May.

A North American genus.

180. ANDROSACE. *L.*

Flowers in an involucrate umbell.—*Calix* 5-cleft, persistent. *Corolla* salverform, 5-lobed, tube ovate, orifice glandulous. *Capsule* 1-celled, ovate-globose, 5-valved, many-seeded.

Annual or perennial. Leaves radical; scapes numerous; calix often angular; flowers usually small, and white.

SPECIES. 1. *A. occidentalis.* Annual. Leaves ovate, smooth, rather thick, and entire. Scapes solitary, or several from the same root, 1 to 3 inches high, minutely pubescent. Leaves of the involucrum oval, pedicells long, 1-flowered. Calix smooth, acute, angular, membranaceous betwixt the segments. Corolla a little shorter than the calix, salverform, white, orifice open, tube ovate, segments oblong, obtuse. Capsule globular, 1-celled, 5-valved. Seeds numerous, angular.

On dry and elevated plains, from the Maha village to the mountains, near the river Missouri; flowering in April. Probably a mere variety of *A. elongata*, but the leaves are entire, and the umbell of the same length both in flower and fruit.

The genus *Androsace* is almost exclusively confined to Europe, and most of the species are alpine; there is at the same time, out of 12 species, 1 in Siberia, 1 in Cappadocia, and a doubtful species as to the genus in the tropical parts of America.

181. PRIMULA. *L.* (Primrose. *Prime-vere*, or First flower of the Spring.)

Flowers in an involucrate umbell.—*Calix* tubular, 5-toothed, persistent. Tube of the *corolla* cylindric, orifice spreading, border 5-lobed, lobes emarginate. *Stigma* globose. *Capsule* 1-celled, summit 10-valved.

Habit as the preceding, but perennial: flowering early; most of the species alpine, withstanding and thriving in the most rigorous climates, to the very limits of perpetual snow. Amongst these, more interesting than the rest, is the *P. auricula* of the Austrian and Helvetic alps, originally yellow, it is now to be seen in gardens of the most diversified colours; the calix and corolla of this species and the under side of the leaves in the *P. farinosa* is singularly decorated with a white and deciduous powder.

Species. 1. *P. mistassinica* 2. **farinosa*. Leaves crenate, smooth, under side pulverulent, border of the corolla flat,—segments obcordate, Smith. Flor. Brit. i. p. 224. (Bird's-eye Primrose.) On the calcareous gravelly shores of the islands of Lake Huron; around Michilimakinak, Bois Blanc, and St. Helena, in the outlet of Lake Michigan: abundant, *v. v. sine fl.*

This interesting genus is almost exclusively confined to the cold or alpine regions of Europe, there are also 3 or 4 species in Siberia, and 1 in the Levant.

182. DODECATHEON. *L.* (American Cowslip.)

Calix 5-cleft. *Corolla* rotate, reflected, 5-cleft. *Stamina* seated in the tube. *Stigma* obtuse. *Capsule* 1-celled, oblong, opening at the apex.

Leaves radical; scapes umbellate, flowers noding; seminal receptacle large, ovate acuminate, stipitate.

Species. 1. *D. Meadia*. 2. *integrifolium*. Leaves subspathulate-ovate, short, nearly entire; umbell few-flowered; flowers erect; bractes linear; segments of the calix linear acute.—A much smaller plant than the preceding.

This genus is peculiar to North America, and extends westward to the mountainous sources of the Missouri, where Captain Lewis collected specimens.

183. MENYANTHES. *L.* (Buckbean. Marsh Trefoil.)

Calix 5-parted. *Corolla* funnel-formed; border spreading, 5-lobed, equal, densely villous on the upper side. *Stigma* bifid. *Capsule* 1-celled, 2-valved; a seminal receptacle attached to each valve.

Herbaceous, aquatic, leaves ternate, alternate, petiole sheathing.

Species. 1. *M. trifoliata.* A genus of a single species, common both to Europe and North America. "Bitter and sudorific." Smith. Flor. Brit. i. p. 226.

184 VILLARSIA. *Gmelin.*

Calix 5-parted. *Corolla* rotate, 5-lobed, segments bearded at the base, with the margins inflected. *Stigma* 2-lobed. *Glands* 5, alternating with the stamina. *Capsule* 1-celled, valveless.

Floating aquatic herbs; with alternate entire leaves, and clusters of pedunculate flowers, apparently bursting from the sheathing petioles.

Species. 1. *V. lacunosa,* (*Menyanthes trachysperma,* Mich.) 2. *cordata,* Elliott.

185. HOTTONIA. *L.* (Water-feather.)

Calix 5-parted. *Corolla* salverform, 5-lobed. *Stamina* seated upon the tube of the corolla. *Stigma* globular. *Capsule* 1-celled, globose, acuminate.

Aquatic herbs; leaves verticillate, pectinately pinnatifid, multifid or simply serrate; flowers solitary, axillary, or terminal, and verticillately spiked, involucrum under each verticil, many-leaved. Does this plant really germinate with 2 cotyledons?

Species. 1. *H. inflata,* Ell. Verticilli about 4-flowered; flowers shortly pedunculate; corolla white, somewhat shorter than the calix; scape short, articulated, internodes and lower part inflated; leaves alternate, crowded, pectinately pinnatifid.

Of this singular genus there are 4 other species; *viz.* 1 in Europe and 3 in India.

186. **SAMOLUS.** ***L.*** **(Brook-weed. Water Pimpernel.)**

Calix 5-cleft, semisuperior, persistent. *Corolla* salverform, 5-lobed; with 5 intermediate scales. *Stamina* included in the tube, and opposite the lobes of the corolla. *Capsule* half-inferior, 1-celled, 5-toothed, many-seeded; receptacle unconnected.

Leaves alternate; flowers racemose, axillary and terminal, pedicells mostly by pairs, geniculate, a single bracte at the articulation.

Species. 1. *S. Valerandi.*

A genus of but a single species, excluding the *S. repens*, which is the *Sheffieldia repens* of Linnæus. The *Samolus* is found in marshes near the sea-coast in every part of the world.

187. **LYSIMACHIA.** ***L.*** **(Loosestrife.)**

Calix 5-cleft. *Corolla* rotate, 5-cleft. *Stigma* 1. *Capsule* 1-celled, globular, mucronate, 5 or 10-valved, few or many-seeded.

Leaves opposite and verticillate; flowers axillary or terminal, solitary, spiked, or corymbose. Staminiferous filaments, in most of the American species glandulous.

Species. § i. Stamens unequal, 3 long and 2 short, united into a short tube.—1. *L. angustifolia.* 2. *recemosa.* Probably a mere variety of the preceding. 3. *Herbemonti*, Elliott. 4. *quadrifolia.* Stem, under side and margin of the leaves conspicuously hairy; leaves verticillate, in fours and fives, ovate-lanceolate, acuminate, opaquely punctate; nerves lateral, confluent in a marginal line; peduncles much shorter than the lower leaves; segments of the corolla ovate, obtuse, often emarginate; capsule 5-valved, about 5-seeded, 2 or 3 of them often abortive; seeds convex, angular, punctate.—§ ii. Stamina equal, segregate, with intermediate dentures.—5. *ciliata.* 6. *hybrida.* 7. *heterophylla?* Upper part of the stem hexangular; radical leaves lanceolate-ovate, upper leaves linear-lanceolate, subsessile, often obliquely and undulately reflected towards the base, petiole subciliate; floral leaves verticillate; peduncles opposite and verticillate; segments of the calix ovate-lanceolate, acute; divisions of the corolla roundish, aristate, crenulate; 5 *sterile filaments* alternating with the stamina; capsule (as in *L. ciliata*) 5-valved, many-seeded.—On the miry strand of the Delaware, &c. 8. **revoluta*. Six to 8 inches high, smooth; stem quadrangular, simple, leaves opposite, all linear, sessile, somewhat oblong, being attenuated at either extremity, revolute on the margin, opaque and very entire; slightly pubescent at the insertion of the stem; only a single peduncle often in the axill of each pair of leaves, about the length of the leaf, cernuous, flowers sometimes all terminal, calix lanceolate, very acute; segments of the corolla roundish-oval, abruptly acuminate, and often irregularly crenulate; stamens separated at the base by intervening dentures.—On the banks of the St. Laurence, Lake Erie, and in the state of Ohio, always in calcareous soil. 9. *longifolia*. 10. *nummularia?* On the calcareous banks of Lake Michigan. 11. *thyrsiflora*. In the state of Ohio, near the shores of Lake Erie, &c.

The genus *Lysimachia* exists chiefly in Europe and North America; at the same time there are 2 species in the Levant, 1 in Media and Siberia, 1 in Japan, 1 in New Holland, near Port Jackson, and another (*L. decurrens*) in the isle of Tanna; these 2 are the only species yet discovered within the Southern hemisphere. The *L. thyrsiflora*, *L. quadrifolia* and *L. Nummularia* are common to Europe.

188. ANAGALLIS. *L.* (Pimpernel.)

Calix 5-cleft. *Corolla* rotate, 5-lobed. *Stamina*, filaments hirsute. *Capsule* globular, opening hemispherically, many-seeded.

Leaves opposite; flowers solitary, axillary.

SPECIES. 1. *A. arvensis*. (Introduced; now commonly naturalized.) This plant, probably without much reason, has been at various periods recommended as a specific for Hydrophobia.

This small genus is chiefly confined to the South of Europe; there is also 1 species peculiar to Barbary, 1 to Jamaica and another to Chili. The *A. ovalis* of Peru appears to be a *Centunculus*.

189. DIAPENSIA. *L.*

Calix 5-parted, subtended by 3 bractes. *Corolla* salverform, border 5-cleft, flat. *Stamina* from the summit of the tube, alternating with the segments of the corolla. *Stigmata* 3. *Capsule* 3-celled, 3-valved, many-seeded.

Species. 1. *D. lapponica.* A small cespitose herb with the aspect of *Sedum*, and the leaves crowded around the root; (as in most alpine plants), peduncles scapiform, 1-flowered. Allied to *Aretia.* 2. *barbulata.* (Pyxidanthera, Mich.) A small sempervirent cespitose herb, with erect surculi, and sessile, terminal flowers; anthers somewhat globular, caudate at the base, opening transversely. Probably distinct from the present genus.

Excluding the *Pyxidanthera*, there exists but a single species of *Diapensia*, common to the Lapponic alps, and the White Hills of New Hampshire.

190. CONVOLVULUS. *L.* (Bind-weed.)

Calix 5-parted. *Corolla* campanulate, plaited. *Stigmas* 2. *Capsule* 2 or 3-celled, cells 2-seeded.

Lactescent and mostly twining herbs; peduncles axillary or terminal, one or many-flowered, flowers mostly bibracteate. A few of the tropical species are shrubby.

Species. 1. *C. tenellus.* (*C. trichosanthes*, Mich. *C. Sherardi*, Pursh.) 2. *aquaticus.* 3. *Sepium.* 4. *stans.* 5. *spithamea.* 6. *paradoxus.* P. (3, 4, 5, and 6, are referred by Pursh to Calystegia of R. Brown, a genus not sufficiently characterised, without Mr. P. has suppressed something important in abridging it.) 7. *Batatas.* (Sweet Potatoe. Cultivated. No where indigenous probably in America; but spontaneous in India.) 8. *obtusilobus.* 9. *sagittifolius.* 10. *panduratus.* 11. *arvensis.* 12. *purpureus.* 13. *macrorhizon.* (Supposed to have been the *C. jalapa* of the shops by Persoon and others, but as a medicine proves inert, and on the authority of Dr. Baldwyn might rather be used as an article of diet!) 14. *tamnifolius.*

This extensive genus of near 140 species appears to be almost equally divided betwixt India and the warmer regions of America, there are also many species in Africa, some in Australasia, only 3 in England, and an equally small number in the North of Europe, yet there are not species entirely wanting in Siberia; some of those within the tropics are remarkably splendid, whilst others in colder countries are obscure and inconspicuous weeds usually occupying neglected wastes.

191. IPOMŒA. *L.* (Bind-weed.)

Calix 5-cleft. *Corolla* funnelform or campanulate, 5-plaited. *Stigma* capitate, globose. *Capsule* 2 or 3 celled, many-seeded.

Scarcely to be distinguished from the preceding genus by any other character than the simple and capitate stigma, and the absence of bractes.

Species. 1. *T. Quamoclit.* Leaves pennate pinnatifid, segments linear, flowers bright crimson, capsule ovate 2-seeded? seed subcylindric-oblong. Cultivated. Indigenous, or more decidedly naturalized in the hotter parts of America. 2. *coccinea.* In the Southern states, and westward in Tennessee. 3. *dissecta.* 4. *carolina.* 5. *lacunosa.* 6. *orbicularis*, Ell. 7. *Bona Nox.* 8. *trichocarpa.* 9. *Nil.* 10. *ciliosa.*

This genus of about 60 species is likewise almost equally divided betwixt India and the warmer parts of America. *I. coccinea*, *I. tammifolia* and *I. Nil*, appear by some means to have been introduced,—probably by the aborigines, as they are never to be met with but in the vicinity of settlements. By most, the species of the preceding genus with lobed but capitate stigmas are admitted in *Ipomæa*, but I have followed Mr. Elliott in retaining to this genus such species only as have a simple capitate stigma.

192. IPOMERIA. Ipomopsis. *Michaux.*

Calix subcampanulate, membranaceous at the base, border 5-cleft. *Corolla* funnelform, 5-lobed, segments entire. *Stamina* unequal, emerging from the tube of the corolla. *Stigma* trifid. *Capsule* superior, 3-sided, 3-celled, and 3-valved, many-seeded. *Seeds* in 2 rows, angular, naked.

Biennial or annual and herbaceous plants, with pennately pinnatifid leaves; flowers aggregated in a racemose panicle, or solitary, axillary and terminal; seeds naked and angular. (In *Cantua* the seeds are winged or marginated.) At present this genus is scarcely distinguished from *Gillia*, except by habit.

Species. 1. *I coronopifolia.* (*Cantua coronopifolia.* Willd.) 2. *aggregata*, Pursh, under *Cantua.* Is this a variety or a species? 3. *inconspicua.* *Ipomopsis inconspicua*, Smith. Exot. Bot. i. t. 14. Altered to *I. parviflora* by Mr. Pursh.

Of this genus, confined thus far to America, there is a fourth species, *I. albida*, with white flowers, and bipinnatifid leaves, discovered by Dombey, near Lima in Peru.

I have, in restoring this genus of Michaux, altered his name merely for the sake of euphony, but retained the allusion, without venturing to criticise its exceptionable composition as formed in part from the name of the preceding genus, *Ipomæa*, with the addition of οψις. as indicative of their common resemblance, sufficiently apt when we compare the *I. coronopifolia* with the *Ipomæa Quamoclit*, deducting, indeed, the diversity of habit. That Michaux's name has been independently derived from the Greek, without any reference to *Ipomæa*, and founded upon its *striking* appearance, as supposed by the editor of this article in Rees's Encyclopœdia, seems altogether improbable.

Nearly all the genera composing the Natural Order *Polemonideæ*, are peculiarly indigenous to America.

193. PHLOX. *L.*

Calix deeply 5-cleft, prismatic. *Corolla* salverform, border 5-lobed, flat; lobes cuneate; tube more or less curved. *Filaments* unequal. *Stigma* trifid. *Capsule* roundish ovate, 3-celled, cells 1-seeded.

Herbaceous, perennial; in *P. speciosa* suffruticose; leaves opposite, simple and entire, those of the corymb often alternate; flowers fastigiate or corymbulose, terminal; calix more or less foliaceous, subulate or mucronate. Corolla various shade of red or purple, accidentally white.

Species. 1. *P. acuminata.* 2. *paniculata.* 3. *undulata.* 4. *pyramidalis.* (*P. latifolia*, Mich.) 5. *cordata*, Ell. 6. *maculata.* (*P. suaveolens*, no where to be found wild, and appears to be nothing more than a white flowered variety of this species, probably raised from seed, as the spotted stem of *P. maculata* is by no means invariable.) 7. *carolina.* 8. *nitida*, Ph. 9. *glaberrima.* 10. *speciosa*, Ph. 11. *pilosa.* (*β. aristata*, Mich. a smoother variety of *P pilosa*, not distinct.) 12. *amœna*, Sims. Bot. Mag. No. 1308. *P. pilosa*, of Walter, Michaux, and Pursh; but an irregular, cultivated variety. 13. *divaricata.* 14. *ovata.* 15. *reptans*, Mich. (*P. stolonifera*, Bot. Mag. 563.) 16. *subulata.* 17. *setacea.* The flowers of this species are commonly white

This hardy and ornamental genus, within its proper limits, is entirely peculiar to North America, with the solitary exception of *P. sibirica* of Northern Asia.

194. *COLLOMIA.†

Calix **cyathiform, rather large, border 5-cleft, acute.** ***Corolla*** **funnelform, 5-lobed, lobes oval-oblong, very short, tube straight, long, and slender.** ***Capsule*** **3-cornered, 3-celled, 3-valved, 3-seeded, valves obcordate.** ***Seed*** **oblong, angular, enveloped by a tenacious mucilaginous integument, (visible when moistened.)**

Annual, leaves alternate, simple, and entire; flowers small and inconspicuous, conglomerated in a terminal fascicle, resembling a capitulum, subtended by several bractes which are broader than the leaves.

A genus appertaining to the Natural Order POLEMONIDEÆ and intermediate with *Phlox* and *Polemonium.*

SPECIES. 1. *C. linearis.* Minutely and pulverulently pubescent; leaves oblong-linear, or sublanceolate; involucrate leaves ovate-lanceolate, acute; bractes and calix viscid.

Phlox linearis? Cavan. ic. 6. p. 17. t. 527.

Root fibrous, annual. Stem round, simple, somewhat more pubescent than the leaves, from 4 to 12 inches. Leaves alternate, the lowest pair sometimes opposite, linear-oblong, sessile, with the margin scabrous and sometimes revolute, rather thick and opaque, without distinct lateral nerves, after the manner of *Phlox*, from 10 to 15 lines long, 2 or 3 lines wide, and attenuated towards the point, upper and floral leaves wider at the base, somewhat amplexicaule, or ovate-lanceolate, acute, with the base near the capitulum diaphanous, and distinctly nerved, proper bractes ovate, about the length of the calix, viscid and pubescent. Calix cyathiform, (or in the shape of a wine-glass) rather large and membranaceous below the incisions, border 5-parted, green, segments semi-lanceolate, acute, each equally 3-nerved. Corolla monopetalous, slenderly funnelform, 5-lobed, lobes oval-oblong, obtuse, short and spreading, (only about a line long), tube straight, slender, subcylindric and erect, about twice the length of the calix, widening towards the border, open above, constricted at the base. Stamina 5, inclosed in the tube of the corolla, unequal, anthers roundish. Style filiform, about the length of the tube; stigma very short, trifid. Capsule obovate, shorter than the calix, with 3 obtuse angles, and as many intermediate salient furrows, cells 3, seeds 3, valves 3, obcordate, carthaceous; receptacle 3-sided, margined, margins parallel to the dissepiments of the valves. Seed cylindric-oblong, coated with a mucilaginous, insoluble, fibrous, and tenacious integument, only visible after immersion in water.

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† From κολλα, *gluten,* in allusion to the character of the seed.

HAB. Near the banks of the Missouri, about the confluence of Shian river, and in the vicinity of the Arikaree village, in moist places. Flowering in June; flower violaceous. It appears to be the same plant figured by Cavanilles, and first discovered in Chili. In upper Louisiana, or above the confluence of the Platte and the Missouri, we no longer meet with any species of *Phlox*. To this genus probably also belongs *Phlox biflora* of Chili, which is also annual, but the habit appears to be different.

195. POLEMONIUM. *L.* (Jacob's-ladder.)

Calix subcampanulate, 5-cleft. *Corolla* somewhat rotate, 5-lobed, tube short, closed at its base by 5 staminiferous valves or scales. *Stigma* trifid. *Capsule* 3-celled, superior.

Herbaceous; leaves alternate, pseudo pinnate; flowers somewhat corymbose, terminal, blue, varying to white.

SPECIES. 1. P. *reptans*. Stem leaves 3 and 4 pair (from 7 to 9) margin of the common petiole subciliate; partial leaves elliptic-ovate, 3-nerved, flowers nutant, capsule (by abortion) mostly 3-seeded.—The seeds of this plant, after maceration, exhibit something analogous to that of the preceding genus, but the mucilaginous fibres are attached only to one extremity.

This genus appears as yet to contain but 2 genuine species; the other is common to Europe and Asia.

196. SOLANUM. *L.* (Night-shade.)

Calix 5-cleft, persistent. *Corolla* rotate, or campanulate, 5-lobed, plaited. *Anthers* partly united, emiting the pollen by 2 pores at the point. *Berry* 2-celled, many-seeded.

Stem herbaceous or shrubby, naked or aculeate, rarely spiny; leaves simple, often sinuately lobed, sometimes unequally pseudo pinnate, in many species growing by pairs; peduncles solitary or several, one or many-flowered, above the axill, scattered or terminal. Pubescence stellate.

SPECIES. 1 *S. nigrum*, variety *virginicum*. 2. *Dulcamara.* Becoming naturalized. 3. *mammosum*. 4. *virginianum*. 5. *carolinense*. 6. **triflorum*. Stem unarmed, herbaceous and procumbent; leaves dentately-pinnatifid, smooth, segments acute, somewhat undulated, with the margin more or less revolute; peduncles opposite the leaves, 2 or 3-flowered.—Flowers small and white, revolute; fruit about the size of a cherry, green when ripe. Stem a little hirsute, spreading and procumbent, about a foot long; leaves somewhat runcinate. This species, though very distinct, appears to have some affinity with the *S. runcinatum* of Peru and Chili.—HAB. As a *weed* in and about the gardens of the Mandans and Minitarees, and in no other situations. Near Fort Mandan. Flowering from June to August.

Of this last genus there are now no less than 140 species described, besides what have been recently added from New Holland and other places. Some of the species have become highly important in human economy, such are the Potatoe (*S. tuberosum*) introduced into Europe from the mountainous parts of Peru in the year 1590, according to Bauhin; the *Melongena* sometimes called egg-plant (*S. Melongena*) of Asia, Africa, and America, cultivated for food in the warmer parts of the continent of Europe, as well as in the United States; the Tomatoe (*S. Lycopersicum*) of India and the warmer parts of America, its fruit affording an agreeable and well known condiment; to these we may add the *S. anguivi* of Madagascar, furnishing also an esculent fruit; the *S. scabrum* of Peru producing a fruit like an orange, answering the purpose of a saponaceous abstergent for washing; with the *P. Pseudo-capsicum* of Madeira every one is familiar, an elegant shrub cultivated for the appearance of its fruit, resembling scarlet cherries.

In its geographical distribution the genus *Solanum* is principally confined to the tropical parts of America, and no where more abundant than in Peru and Mexico; there are also a few species in India and Africa, but in America there are no less than 100. With the exception then of *S. Dulcamara* and *S. nigrum* this genus is principally indigenous to the warmer parts of America, extending also into Asia and Africa; the *S. nigrum* is found apparently spontaneous in every part of the world, in North America it exists westward to the sources of the Missouri. The *S. Dulcamara* is now also becoming naturalized in the

United States. It is scarcely probable that these two insulated species originated in Europe.

197. *ANDROCERA.† (Solanum species.)

Calix ventricose, border 5-cleft, at length deciduous. *Corolla* monopetalous, rotate, subringent, 5-cleft. *Stamina* unconnected, unequal, declined, the fifth corniform and much larger than the rest; *anthers* opening by two terminal pores. *Style* simple, declined; *stigma* 0. *Berry* dry, included in the valvular base of the calix. *Seed* immarginate, rugose.

Habit similar to *Solanum;* flowers in erect lateral racemes, irregularly rotate, yellow; anthers separate, one of them remarkably produced; seeds resembling those of *Datura.*

Species. 1. *A. lobata,* aculeate, hirsute, and herbaceous; leaves by pairs, pinnatifidly lobed, segments obtuse, obsoletely crenate, and undulate; racemes lateral, many-flowered.

Solanum heterandrum, Pursh. Flor. Am. i p. 156, and Suppl. ii. p. 730. tab. 7.

Root annual, fibrous. Stem thorny, branched, and pubescent as well as every other part of the plant; pubescence stellate. Leaves petiolate, by pairs, nerves beset with prickles, for the most part simply pinnatifid, and somewhat ovate. Racemes lateral, many-flowered, flowers pedunculate. Calix small, with a ventricose base; limb 5-cleft, segments linear, acute, deciduous after the enlargement of the spherical base. Corolla large, irregularly rotate, plaited, externally hirsute, the two lower segments divaricate and acuminate. Stamina short, separated, anthers declined, one of them twice as large as the rest. Style declined, incurved, obtuse; stigma indistinct. Berry dry, 1-celled? included in the spherical spiny base of the calix, the base dividing at length into 5 valves. Seeds numerous, nearly black, rugose, angular, compressed, and somewhat reniform, but without margin.

Habitat. Near the banks of the Missouri, in arid, denudated soils, from the confluence of the river Platte to the mountains. Flowering in July and August. Nearly allied, though apparently distinct from the *Solanum cornutum*, so well figured in the Annales du Museum. To this genus, if such it may be considered, this latter species may also be added, and probably the *Solanum Vespertilio*, of Aiton.

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† From ανεϱ, a man, (also the anther, or masculine organ of plants), and κεϱας, a horn; in allusion to the corniform appearance of one of the anthers.

198. PHYSALIS. *L.* (Ground-cherry. Winter-cherry.)

Berry 2-celled, covered by the inflated calix. *Corolla* campanulate-rotate; tube marked with 5 diaphanous concave impressions. *Stamina* connivent.

Annual or perennial, some of the species shrubs; leaves for the most part by pairs; flowers lateral, solitary, or several together.

Although the fruit of this genus has generally been considered narcotic, the berries of all the species indigenous to the United States, are commonly eaten with safety if perfectly ripe; they are sweetish and subacid, and are every where known by the name of "ground-cherries."

SPECIES. 1. *P. viscosa.* 2. *obscura.* 3. *lanceolata.* 4. *pensylvanica.* 5. *angulata.* 6. *philadelphica.* 7. *pubescens.*

This genus is almost exclusively indigenous to India and America; in Europe there is but 1 species, the *P. Alkekengi*, there is also 1 species at the Cape of Good Hope, and the *P. somnifera*, a shrub indigenous to Mexico, is now naturalized in Crete, and Spain.

199. NICANDRA. *Adanson.*

Calix 5-parted, with 5 angles, angles compressed, segments sagittate. *Corolla* campanulate. *Stamina* incurved. *Berry* 3 to 5-celled, covered by the calix.

Habit similar to the preceding genus. Flowers blue.

SPECIES. 1. *N. Physalodes.* Not naturalized, found merely about the rejectments of gardens. Originally from Peru, and the only species of the genus.

200. DATURA. *L.* (Thorn-apple. Jamestown-weed.)

Corolla funnelform, plaited. *Calix* tubular, angular and deciduous, the base orbicular, and persistent. *Capsule* 4-celled, 4-valved, smooth or spiny.

Herbaceous and annual plants; extremely fœtid and narcotic, leaves by pairs; flowers solitary, lateral, and dichotomal, opening towards sun-set.

Species. 1. *D. stramonium.* Overrunning wastes and gardens from the coast of the Atlantic to the sources of the Missouri; but originating probably in South America, or in Asia, it is now also naturalized throughout Europe.

Parkinson in his Paradisius, p. 362, says, that the *Daturas* (including the present species) were brought from Turkey and Egypt, and that Garcias and Christopher Acosta with others, affirmed that they grew in the East Indies. From Boerhaave, the physician and botanist, we also learn that the *Datura Stramonium* is indigenous to the East Indies, and called *Datura* in the vernacular language of the country, he also adds, that acquainted with its narcotic properties, the natives sometimes employed it as a poison, &c. the same account in part has been recently corroborated by the testimony of Colonel Hardwicke, an interesting botanical traveller. Has then the *Datura Stramonium* been introduced into America from India, and by what means?

Of *Datura* Persoon enumerates 7 species, forming a distinct genus of the *D. arborea* under the name of *Brugmansia;* of these 7, 1 is indigenous to China, 1 to Egypt, the fœtid *D. Metel* to Asia, Africa and the Canary islands, the *D. lævis* to Abyssinia, and the *D. ceratacaula* to the isle of Cuba, the real habitat of the *D. tatula* and the *D. Stramonium,* can now no longer be ascertained.

The *D. Stramonium,* lately introduced into medical practice, appears to operate specifically upon the optic nerve when taken in any considerable quantity, producing a remarkable dilatation of the pupil of the eye, and when taken inadvertently in dangerous quantities, it has been known to induce temporary blindness.

201. HYOSCYAMUS. *L.* (Henbane.)

Calix tubular, border 5-cleft. *Corolla* funnel-form, 5-lobed, irregular, lobes obtuse. *Stamina* inclined. *Stigma* capitate. *Capsule* operculate, 2-celled.

Herbaceous; floral leaves often by pairs; flowers solitary, axillary, often inclined to one side of the stem

Species. 1. *H. niger.* Naturalized in Canada and the

Northern states. The whole plant is poisonous and narcotic, excepting the oil expressed from its cotyledons, which is innoxious.

The genus *Hyoscyamus* appertains principally to the South of Europe, and the East, there is also 1 species in Siberia.

202. NICOTIANA. *L.* (Tobacco.)

Calix urceolate, 5-cleft. *Corolla* funnel form, border plaited, 5-cleft. *Stamina* inclined. *Capsule* 2 to 4-valved, 2-celled.

Herbaceous or rarely suffruticose, flowers terminal, racemose or paniculate, segments acute or obtuse. Capsule in most of the species partly 4-valved.

Species. 1. *N. Tabacum.* Cultivated. No where decidedly indigenous. Introduced into North America apparently by the aborigines. Near the confluence of Pidgeon river with the Tennessee, and in some other parts of the state of Tennessee, I am assured by the earliest settlers, that Tobacco came up spontaneous around the ruins of the ancient aboriginal stations. The genuine habitat of the *Nicotiana Tabacum,* though so confidently referred to America, still appears to be involved in obscurity; in Europe it was first made known about the year 1560 by Nicot, a French ambassador, who had received seeds of it from Florida during his residence at Lisbon, and it was in honour of him that the genus acquired its name; about the same time also the Spaniards received it from Tobaco, a province of Yucatan, hence its common name. The learned Savary, however, asserts that the Persians have cultivated Tobacco (now) more than 400 years, and that they received it from Egypt. 2. *rustica.* According to the observations of the late Dr. B. S. Barton, cultivated and introduced by the indigenes. Still naturalized near the borders of some of the smaller lakes in the western parts of the state of New York. Cultivated also by the aborigines of the Missisippi, and by some of the tribes on the Missouri. *N.* 3. *quadrivalvis,* Pursh. Annual; stem low, erect, and diffusely branched; leaves lanceolate, rather short, acute and sessile, sometimes auriculate at the base; calix campanulate, a little shorter than the tube of the corolla, somewhat inflated, closed. segments acuminate; limb of the corolla expanding, nearly flat, segments acute; capsule roundish, 4-valved.

Stem 1 to 2 feet high; flowers white, in a scattered panicle, opening about sun-set, calix viscid.

Cultivated by the aborigines of the Missouri from the river Platte to the mountains, also by the natives who inhabit on the banks of the Columbia river. I have no where seen it spontaneous, but am informed of its existence as such on the banks of the Columbia. The Tobacco most esteemed by the Indians of the Missouri is that which they obtain from the flowers, preserving the viscid calix and rejecting the corolla.

This genus now consisting of 13 species is for the most part indigenous to South America; there is however 1 species in China, the *N. fruticosa*, and another around Port Jackson in New Holland.

It is doubtful whether all the benefits which have accrued to Europe from the discovery of America, have not been counterbalanced by the introduction of this universal luxury, produced at the expense of human liberty, and of a soil which could otherwise be employed in augmenting the necessaries of life, independent of the diseases inseparable from the use of so powerful a narcotic.

203. VERBASCUM. *L.* (Mullein.)

Calix **5-parted.** ***Corolla*** **rotate, 5-lobed, unequal.** ***Stamina*** **declined, bearded.** ***Stigma*** **simple.** ***Capsule*** **2-celled, valves inflected, many-seeded.**

Herbaceous or rarely suffruticose, mostly biennial; leaves often decurrent on the stem, entire, deeply toothed, or more or less pinnatifidly lobed; pubescence stellate or simple and glanduliferous; flowers densely spiked or racemosely paniculate. Anthers 1 celled.

SPECIES. 1. *V. Thapsus.* Introduced. Now naturalized. Pubescence ramified, and proliferously articulated. The capsules of this plant, about the period of maturity, are said to possess a degree of irritability, suddenly closing with crepitation after being forcibly struck. According to the observations of Dr. Smith in Flor. Brit. 1. p. 250, the whole herb is mucilaginous, emollient, and somewhat narcotic. 2. *Lychnitis.* 3. *Blattaria.* Both these species have been introduced. Now naturalized. 4. *Claytoni.*

This genus is chiefly indigenous to the South of Europe, there are a few species also in the Levant, and a shrubby and spiny species in the isle of Crete. *V. Claytoni* appears to be a mere variety of *V. Blattaria.*

204. SPIGELIA. *L.* (Carolina Pink-root.)

Calix 5-parted. *Corolla* funnel-form, border 5-cleft, equal. Anthers convergent. *Capsule* didymous, 2-celled, 4-valved, many-seeded.

Herbaceous or suffruticose; leaves opposite; flowers bracteolate, in a terminal unilateral spike or cyme.

SPECIES. 1. *S. marilandica.* Well known as an anthelmintic. Flowers, externally brilliant crimson, internally greenish, corolla somewhat club-shaped campanulate, style fusiform, exserted. This plant was formerly found near Baltimore, in Maryland; it is now rare in Virginia.

Of this genus there are 2 other species in Brazil and Cayenne.

205. OPHIORHIZA. *L.*

***Calix* 5-cleft. *Corolla* funnel-form, 5-cleft. *Germ* bifid. *Stigmata* 2. *Capsule* mitre-formed, 2-lobed, 2-celled, many-seeded.**

Herbaceous or suffruticose; leaves opposite; flowers bracteolate, in lateral and terminal cymes.

SPECIES. 1. *O. Mitreola.* 2. *lanceolata*, ELLIOTT. (*Cynoctonum petiolatum*, Gmelin, Syst. Veg. 443.)

Of this genus there are but 2 other species; the *O. Mungos* of the East Indies, and *O. subumbellata* of the island of Otaheite, in the Pacific.

206. SABBATIA. *Adanson.*

***Calix* 5 to 12-parted. *Corolla* rotate, 5 to 12-parted. *Stigmas* 2, spiral. *Anthers* at length revolute. *Capsule* 1-celled, 2-valved, many-seeded.**

Annual and perennial; leaves opposite, entire; flowers dichotomal and terminal, often fastigiate. (Bitter and tonic.)

SPECIES. 1. *S. gracilis*, (*S. stellaris*, Pursh.) 2. *angularis.* 3. *calycosa.* 4. *brachiata*, ELL. 5. *gentianoides*, ELL. 6. *chloroides.* 7. *paniculata.* 8. *corymbosa.*

A North American genus, nearly allied to *Chironia.*

207. AZALEA. *L.* (Swamp Honeysuckle.)

***Calix* 5-parted. *Corolla* funnel-form, or campanulate, 5-cleft, unequal. *Stamina* declined,**

inserted upon the torus or receptacle. *Style* declined; *stigma* obtuse. *Capsule* 5-celled.

Shrubs with alternate entire leaves; commonly more or less strigose on the margin and nerves; flowers bracteolate, solitary (in *A. indica*, &c.) more commonly in terminal fastigiate clusters, appearing before the expansion of the leaves, or more rarely after (as in *A. viscosa*, &c.) colour white, red, scarlet, and yellow.

Species. 1. *A. calendulacea.* This plant appears to be now considered as nothing more than a variety of *A. pontica* of the Levant. 2. *canescens.* 3. *bicolor.* 4. *nudiflora.* 5. *viscosa.* Of this species the most remarkable spontaneous variety, is the *A. viscosa, glauca*, very unnecessarily made a species by Mr. Pursh; in this plant the leaves are constantly glaucous on both surfaces, in other respects it is not distinguishable from *A. viscosa.* 6. *procumbens.* On the White Mountains of New Hampshire.

This fine genus, so much esteemed by horticulturists and florists for the beauty and fragrance of its flowers, exists chiefly in North America. There is, however, 1 species in India, which has been long cultivated by the Chinese; another in Lapland, but scarcely of the same genus any more than the *A. procumbens* of the European alps which has opposite leaves; the *Azalea rosmarinifolia* of Japan appears to be equally dubious considered as a congener of the *A. pontica* and the American species.

208. BUMELIA. *Swartz.*

Calix 5-parted. *Corolla* salver-form, deeply 5-parted. *Nectarium* (or inner corolla) 5-leaved. *Drupe* 1-seeded.

Shrubs or small trees, often spinescent, branches flexuose, much divided; leaves simple, alternate, entire, mostly sempervirent; flowers in lateral or axillary clusters; wood more or less foetid.

Species. 1. *B. Lycioides.* 2. *lanuginosa.* 3. *Chrysophilloides.* 4. *reclinata.* 5. **oblongifolia.* Spiny, leaves smooth, oblong, obtuse, deciduous; flowers conglomerate, nearly sessile, very numerous; segments of the nectarium trifid.

A small tree about 18 feet high, with numerous flexuose or tortuous branches. Segments of the calix ovate, concave. Nectarium nearly equal with the corolla, divisions trifid, connivent, opposite the stamina. Drupe carneous purple, at length blackish brown, wood fœtid. First noticed by Mr. J. Bradbury, near the lead mines of St. Louis on the Missisippi; it is also abundant as far down the river as Natchez.

The *B. serrata*, inadvertently described by Mr. Pursh, was nothing more than a young branch of the *Prunus caroliniana* without flowers, which I had collected near the town of Natchez on the Missisippi. I have thought it no less than my duty to the public to rectify this mistake, without, I hope, intending any personal reflection, as we are all equally liable to prevailing error.

The rest of this genus, exclusively American, is confined to the West India islands.

††† *Flowers monopetalous, superior.*

209. CAMPANULA. (Bell-flower.)

Calix mostly 5-cleft. _Corolla_ campanulate, the base closed with 5 staminiferous valves. _Stigma_ 3 to 5-cleft. _Capsule_ inferior, 3 or rarely 5-celled, opening by lateral pores.

Lactescent; herbaceous or rarely suffruticose; flowers bracteate, axillary, solitary or fasciculate, sometimes in terminal spikes or panicles; in a few species the corolla is nearly rotate.

SPECIES. 1. *C. rotundifolia.* Well named *decipiens* by Persoon, as there are very seldom any round leaves to be seen on the plant. 2. *divaricata.* 3. *americana.* 4. *acuminata.* 5. *nitida.* 6. *Erinoides.* (*C. flexuosa?* Mich. *C. aparinoides*, Pursh.) § II. LEGOUSIA. Corolla salver-form. Stigma 2 or 3-cleft. Capsule prismatic-cylindric, 2 or 3-celled, many-seeded.—7. *amplexicaulis.* (*C. biflora?* Flor. Peruv.)

This vast genus of more than a hundred species is in great part indigenous to Europe, extending into Barbary in Africa, and Siberia in Asia, as well as the Levant, a considerable number of the species are rare and alpine; in the southern hemisphere there are scarcely any but what are afforded by the Cape of Good Hope; in the whole continent of South America there are but 2 species described, viz. the *C. filiformis* of Chili, and the *C. biflora* of Peru, apparently the same plant as the *C. amplexicaulis* of North America.

210. PINCKNEYA. *Michaux.*

Calix 5-parted, 1 or 2 of the segments very

large, resembling coloured bractes. *Corolla* long and tubulous, border recurved. *Stamina* exserted, inserted near the base of the tube. *Capsule* roundish, at length opening with 2 valves in a contrary direction to the double dissepiment. *Seeds* winged, transversely arranged upon the receptacle.

A small tree, with entire, opposite and stipulate leaves; panicle terminal, fascicles from 4 to 5-flowered; flowers rather large. Nearly allied to *Cinchona*, differing more by the *habit* than the character of the fruit, which when quite mature is distinctly bipartile in the line of the dissepiment, after the manner of *Cinchona*, the partition is therefore not contrary to the valves, but a continuation of their margin, proceeding inwards to the receptacle or axis of the capsule; the fruit of *Pinckneya* is in fact 2-celled and 4-valved, the seed-vessel never completely opening before the destruction of the tenaceous integument which surrounds it.

SPECIES. 1. *P. pubens*. In Sphagnose swamps from Carolina to Florida. Near Savannah in Georgia, &c. usually not far from the sea-coast.—Hitherto there is but 1 species discovered. Its bark appears from the taste and appearance altogether similar to that of *Cinchona*, and is probably medicinal. The monstrous and finely discoloured bracteiform segments of its calix, of a pink red, render it highly ornamental, but it does not long survive its transplantation in Europe; it would probably thrive betbetter in bog-soil, on the margin of an aquarium supplied with artificial heat.

211. CHIOCOCCA. *Brown. L.*

Calix 5-toothed. *Corolla* funnel-form, equal. *Berry* compressed, didymous, 2-seeded, inferior. *Seed* oblong, compressed.

Erect or scandent shrubs; leaves opposite, entire; flowers axillary, racemose or solitary.

SPECIES. 1. *C. racemosa*. On the sea-coast of Florida.—Of this genus there are 2 other species; 1 in Peru, and another discovered by Forster in the Society and Friendly islands of the Pacific.

212. CAPRIFOLIUM. *Tournefort. Juss.* (Coral-Honey-suckle.)

Calix 5-toothed, bracteate at the base. *Corolla* long and tubulous, 5-cleft. *Berry* 3-celled, many-seeded, distinct.

Shrubs with twining stems; leaves connate at the base; flowers sessile, terminally capitate, or axillary verticillate, verticills 6-flowered.

SPECIES. 1. *C. sempervirens.* 2. *gratum.* (*C. flavum* is probably a variety of this species.) 3. *parviflorum.* This species I have observed as far westward as Fort Mandan on the Missouri, and am inclined to believe the *C. ciliosum* of Pursh a mere variety of it.

Of this genus, so much esteemed in the gardens for its beauty and its odor, there are besides the above species, the *C. Periclymenum* or Woodbine of Europe, and the *C. japonicum.*

213. XYLOSTEUM. *Tournf. Juss.*

Flowers by pairs on the summit of the same peduncle.—*Calix* 5-toothed, bracteate at the base. *Corolla* 5-cleft or 5-lobed, nearly equal, or irregular and bilabiate. *Berries* by pairs, united entirely, or only at the base, 2-celled, many-seeded.

Erect shrubs; peduncles 2-flowered, axillary, solitary.

SPECIES. 1. X. *ciliatum.* Pursh. Very distinct from *X. tataricum;* the variety *β. album.* of Mr. Pursh bearing white berries is *Symphoria racemosa* of Michaux, now cultivated in several gardens near Philadelphia from seeds collected by the late governor Lewis. 2. *villosum.*

Of this genus there are five species in Europe, one in Tartary, one in Barbary, one in Asia Minor, and another in Japan.

214. SYMPHORIA. *Persoon, Juss.*

Calix small, 4-toothed, bracteolate at the base. *Corolla* tubular, short, 5-cleft, subequal. *Stigma* globose. *Berry* ovate, small, crowned with the persistent calix, 4-celled, 4-seeded, 2 of the cells sometimes abortive.

Erect shrubs; flowers small, conglomerate and axillary, or in short terminal, racemes, smooth or internally pubescent as in *Mitchella*.

Species. 1. *S. glomerata.* (*Lonicera Symphoricarpos.* Willd. Spec. Plant. 1. p. 989.) Partial racemes axillary, crowded, imbricated in four ranks; flowers cylindric-campanulate, bractea 3-leaved.—Flowers greenish-red; berries bluish-purple. From Virginia to Florida; in Tennessee and up the Missouri to its sources. Common. 2. *racemosa.* Berries large, opaque, and white.—In Upper Canada, not far from Queenston on the Niagara river; near the outlet of Lake Huron, and on the banks of the Missouri. Not rare. This genus is confined to North America. Allied to *Mitchella?*

215. DIERVILLA. *Tournefort. Juss.*

Calix oblong, 5-cleft, bracteate at the base. *Corolla* double the length of calix, funnelform, 5-cleft, spreading. *Stigma* capitate. *Capsule* oblong, naked, acute, 4-celled, many-seeded. *Seeds* minute.

A shrub with entire serrated leaves; peduncles axillary and terminal, dichotomous, mostly 3-flowered; flowers yellow.

Species. 1. *D. Tourneforti.* The only species of the genus: and exclusively indigenous.

216. TRIOSTEUM. *L.* (Fever-wort.)

Calix 5-cleft, persistent, nearly the length of the corolla; segments linear, acute. *Corolla* tubulous, 5-lobed, subequal, base nectariferous, gibbous. *Stigma* somewhat 5-lobed, capitate. *Berry* 3-celled, 3-seeded, crowned with the calix.

Herbaceous; stem simple; leaves opposite, entire, mostly connate; flowers axillary, sessile, usually by threes, rarely solitary, calix bibracteate.

Species. 1. *T. perfoliatum.* Leaves undulated on the margin and hirsute above. Calix, corolla and younger stems, viscosely-pubescent. 2. *angustifolium.*—This genus is confined to North America, with the exception of a 3d species said to grow in Madagascar? The root is emetic and cathartic.

†††† *Flowers pentapetalous, superior.*

217. RIBES. *L.* (Currant and Gooseberry.)

Calix superior, campanulate, 5-cleft. *Petals* and stamina inserted upon the calix. *Style* bifid. *Berry* many-seeded.

A genus of shrubs, with alternate lobed leaves, consisting of two natural sections. First, GROSSULARIA (Gooseberry) with simple or divided axillary thorns; peduncles few-flowered, fruit larger. Second, RIBESIA (Currant), without axillary thorns; flowers in racemes. —Fruit mostly edible and subacid.

SPECIES. § I. RIBESIA.—1 *R. albinervium.* 2. *trifidum.* 3. *rigens.* 4. *prostratum.* 5. *resinosum.* 6. *viscosissimum.* Ph. 7. *sanguineum.* 8. *aureum.* Flowers highly odorous in one of the varieties; berries larger or smaller, red, fulvous, and black, the latter of these colours is that which is natural. 9. *recurvatum.* 10. *pensylvanicum.* Apparently a permanent variety of *R. nigrum.*—§ II. GROSSULARIA. (Gooseberry.) 11. *rotundifolium.* 12. *hirtellum.* 13. *gracile.* 14. *triflorum.* 15. *oxycanthoides.* 16. *lacustris?* Axillary spines none? Stem very hispid (as in *Robinia hispida*) leaves deeply cut, 5-lobed, smooth, segments unequally cleft, and toothed; racemes few-flowered, rather long and pendulous; berries roundish-ovoid, hairy, black.—Pubescence ferruginous, berries sour, rather insipid. HAB. In dark and swampy forests amongst rocks, on the islands of lake Huron, near Michilimakinak. 17. *Cynosbati.*

Nearly all the species of this interesting genus are alpine. In the north of Europe there are 6 species (all of them spontaneous in Britain;) 5 in Siberia, 2 of them in Dauria, 1 upon the granitic mountains of Songaria, and 2 others also discovered by Pallas upon the loftiest summits of the Mongolian chain; there are 6 other species of this genus indigenous to the Andes of Peru and Chili.

Scarcely any of the American species of Ribes produce fruit in England.

††††† *Flowers pentapetalous, inferior.*

218. **DROSERA.** *L.* (Sun-dew.)

Calix 5-cleft, persistent. *Petals* 5. *Anthers* 2-lobed, growing to the filaments. *Germ* superior. *Style* 1. *Stigmas* 3 or 4 divergent, deeply bifid. *Capsule* 1-celled, 3 or 4-valved, many-seeded. *Seeds* attached to the middle of each valve.

Herbaceous; leaves radical, alternate, stipulate, laminæ discoid or elongated, denticulately ciliated and covered with glandulous, capitate filaments, somewhat resembling the tentaculi of some marine animals, and capable of slow contraction in order to retain and destroy irritating insects; flowers in cymose racemes; scape at first circinately involute, petals marcesent. A genus very nearly allied to *Dionæa*.

Species. 1. *D. rotundifolia.* Obs. Leaf suborbiculate, dilated, petiole elongated, hairy on the upper side; racemes frequently bifid. Segments of the calix linear-oblong, obtuse, smooth; petals oblong; stigmata 3 or 4, deeply bifid, apex clavâte, capsule 3-valved; seeds very numerous, subulately alated, imbricate, longer than the breadth of the valves.

2. *longifolia.* Obs. Caudex elongated 4 or 5 inches after the manner of a stem. Leaves 2 to 4 inches long, obovate, disk and ciliate margin glandular; stipules about 10-cleft, capillaceous; raceme simple; flowers secund; segments of the calix oblong-ovate, obtuse. Seeds oblong, obtuse, short. Hab. Both these species are common near Philadelphia, but principally in New Jersey.

3. *brevifolia,* Pursh. Obs. Scape 2 or 3 inches high, simple; leaves cuneate, suborbiculate, denticulately ciliate, disk glanduliferous, marked with an obcordate nerve (as in all the preceding); petiole scarcely longer than the lamina, smooth on the upper side; stipules scariose, 3 or 4-cleft; segments of the calix, which is smooth, and petals oblong-oval, obtuse; stigmata 3, deeply bifid, apex linear, capsule 3-valved; seeds black, minute, shorter than the breadth of the valves, oblong-ovate, obtuse at each extremity.—Hab. From North Carolina to Georgia, on the margins of sandy ponds; often in dry and arid situations. Nearly allied to *D. Burmanni* of Ceylon and Cochinchina.

4. *filiformis.* Leaves filiform and subulate, very long (6 to 9 inches), covered from the base to the summit with tentaculoid, glandulous filaments, smooth on the under side, circinately involute, or rolled inward from the base to the point, (similar to the unexpanded frond of a Fern). Stipule complicately-dissected, resembling a lanuginous web. Scape smooth, about the length of the leaf, racemosely cymose, simple or bifid, few-flowered; bractes subulate, longer than the pedicells. Calix 5-parted, segments unequal, short, the larger oboval, very obtuse, externally covered with a short viscid pubescence. Petals numerously and longitudinally veined, oboval, pale purple. Stamina 5, anthers bilobed, oblong, yellow, pollen large in twin globules. Style sessile, stigmas 3, deeply bifid, summit somewhat incrassated, viscid. Seeds black, minute, ovate, acute, punctured. This singular species of *Drosera* was first discovered in New Jersey by Mr. Rafanesque and described in the second volume of the New York Medical Repository. It appears to be nearly allied to *D. lusitanica* with which it ought to be compared.

Of this singular genus there are 4 species in Europe; the *D. lusitanica* appears to be almost a distinct genus, having subumbellate decandrous flowers and consequently very nearly allied to *Dionæa;* there are 4 species at the Cape of Good Hope, of which the *D. cistiflora* seems to be also a separate genus; and one species in Ceylon nearly allied to the *D. brevifolia;* the *D. indica* also appears inadmissible as a *Drosera*, having a branching stem; the very singular *D. peltata!* and *D. pedata!* of New Holland are indubitably distinct from the European *Drosera*.

Besides the botanical affinities existing betwixt *Drosera* and *Dionæa,* there is also a similarity in their physical properties. Both give out by expression a yellow and partly resinous fluid, which to the taste is sweet and somewhat astringent, but quickly succeeded by a transient pungency.

219. VITIS. *L.* (Vine.)

Calix minute, 5-toothed or entire. *Petals* 5, mostly cohereing above in the manner of a calyptrum, coming off at the base, and then deciduous. *Style* 0. *Stigma* capitate. *Berry* 5-seeded, superior, round or rarely ovate. (Flowers mostly dioicous.)

Leaves simple and cordate, angularly or sinuately lobed, rarely digitate or pinnate (Cissus?) flowers numerous, in compound racemes, not uncommonly producing 4, 6 and 7 petals, with a corresponding number of stamens, calix mostly entire, or obsoletely crenate; a glandulous disk surrounding the germ; tendril dichotomous, sometimes producing flowers, therefore analogous to a sterile raceme.

Species. 1. *V. Labrusca.* 2. *æstivalis.* Under side of the younger leaves spread with an arachnoid tomentum. 3. *cordifolia.* 4. *riparia.* 5. *rotundifolia.* 6. *palmata?* All the North American species of *Vitis*, are polygamous and dioicous; the male flower mostly contains an abortive germ. It is probable that hybrids betwixt the European vine, (*Vitis vinifera*) and those of the United States would better answer the variable climates of North America than the unacclimated vine of Europe. When a portion of the same industry shall have been bestowed upon the cultivation of the native vines of America, as that which has for so many ages and by so many nations been devoted to the amelioration of the *Vitis vinifera*, we can then no longer imagine the citizens of the United States indebted to Europe for the luxury of wine. It is not, however, in the wilds of uncultivated nature that we are to obtain vines worthy of cultivation, were this the case Europe would to the present have known no other Malus than the worthless and austere crab in place of the finest apple, no other Pyrus than the acerb and inedible Pyraster or stone pear, from which cultivation has obtained all the other varieties. It is from seed that new and valuable varieties are invariably to be obtained. There is, however, at the present time, a variety of one of the native species cultivated under the name of "Bland's grape," an hybrid? no way, in my opinion, inferior to some of the best European grapes. According to the observations of Z. Collins, Esq. who has long cultivated it in a garden, it far exceeds in producing, every other vine in the United States, and is perfectly hardy.

Of this genus there are besides the *Vitis vinifera* of Europe, 2 species in India, one of them said to be common to the West Indies, 2 species in Japan, and 2 without any assigned habitat.

220. CISSUS. *L.* Ampelopsis. *Mich.*

Calix minute, 4 or 5-toothed. *Petals* 4 or 5, unconnected above, spreading, deciduous. *Germ* surrounded with a glandulous disk. *Berry* 2-celled, 2 to 4 seeded. (Stamina sometimes 4.)

Sarmentose or twining shrubs similar to the preceding, but brittle or soluble at the joints; leaves simple, ternate, quinate, or pinnate; flowers in di or trichotomous, compound racemes, often corymbose.

Species. 1. C. *Ampelopis.* 2. *hederacea.* Articulations and petioles tumid; racemes cymose, flowers by 2's or 3's, petals 5, cucullate, unconnected; stamina 5, seated upon the petals, anthers horizontal, connected to the subulate filaments about the middle; glandular disk none. Germ conic, 4-seeded. Style 0. Stigma minute, glandular. Can this be referrible to the genus *Cissus?* 3. *bipinnata.* (*C. stans.* Persoon.)

The genus *Cissus*, with the exception of the above, is entirely tropical; there are 10 species in Peru and the West Indies, 11 in India and the neighbouring islands, 1 in Arabia Felix, and another common to India and Arabia, 2 at the Cape of Good Hope, and 2 in Japan, and 1 according to Lamark in the Levant.

No species of this genus appears to afford edible fruit, notwithstanding its near affinity to *Vitis.* I have nevertheless been informed that the fruit of the *C. bipinnata* becomes agreeable when perfectly matured; to my taste they are always nauseous like the berries of the genus *Caprifolium.*

221. ITEA. *L.*

Calix small, 5-cleft. *Petals* 5, linear, reflexly spreading, inserted upon the calix. *Stigma* capitate, 2-lobed. *Capsule* 2-celled, 2-valved many-seeded; the seeds attached to the inflected margins of the valves.

A shrub with alternate, minutely bistipulated leaves; spikes solitary, terminal; bractes deciduous. (Flowers white and odorous.)

Species. 1. *T. virginica.* Like the following growing exclusively on the margins of swamps and stagnating rivulets.

The only species, and peculiar to North America.

222. CYRILLA. *L.*

Calix minute, subturbinate, 5-parted. *Petals* 5, stellately spreading. *Stigmas* 2, (rarely

3.) *Capsule* 2-celled, 2-seeded, not opening. *Seed* ovate, attached to the summit of the receptacular axis by means of an umbilical filament.

Shrubs with subverticillated branches, verticills distant; leaves alternate, entire, without stipules; racemes terminal, clustered; flowers small and white, pedicells bibracteolate.

SPECIES. 1. C. *caroliniana*. Of this genus there is another species described by Michaux or Richard as growing in the islands of the Antilles.

223. GALAX. *L.* ERYTHRORHIZA. *Mich.* SOLANANDRA. *Persoon.* (Beetle-weed.)

Calix 5-parted, persistent. *Corolla* twice the length of the calix, 5-petalled: petals affixed to the base of the stamina. *Antheriferous tube* 10-cleft, the 5 shorter segments bearing the anthers. *Stigma* 3-lobed. *Capsule* 3-celled, 3-valved, valves septiferous in the centre. *Seeds* many, affixed to a central axis.

Herbaceous, perennial and sempervirent; leaves coriaceous, all radical, reniform, and crenate on the margin; scape naked, many flowered; flowers small and white, disposed in a long spike. (Is not *Gunnera magellanica* and the *Laupanke* of Feuillée, 2. t. 31. allied to this genus?)

SPECIES. 1. *G. aphylla*. A subalpine plant, abundant on the margins of running springs, beneath the shade of *Kalmia latifolia* or *Rhododendrum maximum*, throughout the high mountains of Virginia, Tennessee, Carolina and Georgia. The root is red and astringent. The whole plant spontaneously exhales a stercoraceous odor, which is not sensible in the bruised leaf! It is from this singular property that it has obtained the name of Beetle-weed, or a vulgarism equivalent to it by the inhabitants and hunters in the mountains of North Carolina.

There is but one species of this genus and peculiar to North America.

224. IMPATIENS. *L.* (Balsam, Touch-me-not.)

Calix 2-leaved. *Corolla* 4-petalled, irregular; the 2 interior petals unequally bilobed; lepanthium (nectarium L.) hooded, calcarate. *An-*

thers at first cohering. *Capsule* superior, 5-valved, elastic.

Tender and herbaceous plants with succulent stems; leaves alternate or rarely opposite, without stipules; peduncles axillary, 1 or many-flowered.

Species. 1. *I.* * *pallida*, peduncles solitary, 3 or 4-flowered; lepanthium (petaloid nectary) obtusely conic, dilated, shorter than the petals; spur recurved, very short; flower citron yellow, sparingly punctate; leaf rhombic-ovate, mucronulately toothed.

I. Nolitangere. Pursh. Flor. Am. 1. p. 171.

Obs. Stem tall and much branched, tumid at the joints, diaphanous. Leaves of an uniform green, rather acute, lower ones upon longish petioles; Racemes from 3 to 5-flowered; bractes ovate-acuminate. Leaves of the calix roundish, dilated. Petals 4, including the lepanthium; 2 lateral petals very unequally bilobed, larger lobe dilated, retuse, sparingly maculated with brownish red towards the base. Lepanthium obtusely conic, broader than long, spotted; spur of the galea shorter than the calix. Seeds elliptic compressed.—Flower considerably larger than that of No. 2. and of *I. Nolitangere*, and very differently formed. In the vicinity of Philadelphia it is much rarer than the following, and flowers nearly a month later; in July and August.

2. * *fulva*, peduncles solitary, 3 or 4-flowered; lepanthium acutely conic, longer than the petals; spur resupinate, emarginate, nearly as long as the galea; flower fulvous, crowded with spots; leaf rhombic-ovate, obtuse, mucronulately toothed. *I. biflora*. Willd. sp. pl. 1. p. 1175. Pursh, Flor. Am. 1. p. 171. *I. maculata*. Muhl. Catal. As several species are spotted I have not adopted the last name, and changed the former because it was deceptive. *I. Nolitangere*, *β*. Mich. 2. p. 149. which species it more nearly resembles than the preceding.

Obs. Plant glaucous, and diaphanous, smaller than *I. pallida*, which it, however, closely resembles, excluding the specific character. Capsule 5-angled, 3 to 5-seeded, seed subprismatic with 4 angles. Cotyledones flat, carinate, cupreous green. Perisperm none. Hab. Extremely common on the alluvions of streams.

This species is sometimes used for dying Salmon-red.

The other species of this genus, with the exception of *I. Nolitangere* of Europe, are indigenous to China, India, and the Cape of Good Hope.

225. VIOLA. *L.* (Violet.)

Calix 5-leaved, produced at the base. _Corolla_ 5-petalled, irregular, the lower petal cornute behind. _Anthers_ connivent, cohering at the membranaceous apex. _Capsule_ superior, 3-valved, 1-celled.

Herbaceous, rarely shrubby; leaves alternate, stipulate; peduncles radical or axillary, 1-flowered, flowers often inverted. (Capsule cartilaginous, obtusely triangular, valves seminiferous in the middle, contracting when open, and ejecting the seeds with elasticity; seeds in 3 rows, covered with a fragile coloured shell; hilum caruunculate; corculum erect and flat, in the centre of a carneous perisperm; cotyledons roundish-oval, radicle cylindric.—All the North American species of *Viola*, like the *V. canina*, continue through the summer to produce apetalous flowers and fruit; (with the exception of the anomalous *V. concolor.*) in the stemless species the fruit thus produced is generally near the root and not unfrequently beneath the soil. The *V. striata*, which continues flowering in the vicinity of Philadelphia until June, begins to produce apetalous flowers in July in consequence of the elevated temparature. The genus *Viola* then belongs to the temperate zone, where it continues to flower as long as it produces leaves.)

Species. §. I. Stemless.—1. *V. pedata.* Stigma large, compressed at the sides, apex obliquely truncate, perforate.—I have never seen any other violet with a stigma similar to this.

2. *palmata.* Leaves always more or less pubescent on both sides; during the period of inflorescence, palmate or lobed, before and after flowering, entire, cordate or reniform, and only then to be distinguished from *V. cucullata* by the constancy of the pubescence; stigma capitate, recurved, rostrate, depressed, margined all round; segments of the calix acute.

3. *sagittata.* Leaf, nearly smooth, or sometimes slightly pubescent on the upper side, often hastate; flower scarcely to be distinguished from that of *V. cucullata.* β. **emarginata.* Leaves similar to those of *V. sagittata*, almost triangularly cordate, or hastate, lacerately toothed near the base and decurrent in a narrow margin on the petiole, always smooth beneath, often pubescent above; scape longer than the leaf; petals obovate, all emarginate or bi-dentate, the low-

est cucullate, the 3 lower and sometimes the 2 upper pubescent, segments of the calix glabrous, lanceolate, acute; stigma rostrate, depressed horizontally, distinctly margined around. Flowers of a fine deep blue.—In the sandy fields of New Jersey near Philadelphia, and also on the banks of the Schuylkill. In hundreds of living plants presenting the same characters. The *V. dentata* of Mr. Pursh appears also a mere variety of *V. sagittata.*

4. *ovata.** Leaves ovate, subcordate, crenate, rather acute, often lacerately toothed at the base, equally and for the most part conspicuously pubescent on either side, petiole marginated; scape shorter than the leaves; segments of the calix subciliate; petals obovate, the two lateral ones bearded.—*V. primulifolia,* of Pursh, not of Linnæus. On dry hills, as correctly remarked by Mr. Pursh. Flowers bright blue, flowering in April and May. Abundant near Philadelphia on the shelving rocks which border on the Schuylkill and also in the sandy fields of New Jersey.

5. *cucullata.* Smooth, leaves reniform-cordate, acute, sinuously serrate, cucullate at the base; peduncle often as long as the leaf; lateral petals bearded.

6. *villosa.* Walter and Elliott. (*V. sororia.* Willd. Hort. Berol. 1. t. 72.) Leaves roundish-cordate, crenate-serrate, obtuse, upper side almost hirsutely pubescent, under side smooth, peduncle about the length of the flowering leaves, petals oblong, the lateral and lowest one bearded.—Leaves rather thick, mostly incumbent on the ground, often purplish on the under side. β. * *cordifolia.* Leaves small, cordate, acute, crenately serrate, flat with a very small sinus, hirsutely pubescent above, smooth beneath; scape always longer than the flowering leaves, segments of the calix smooth, short, rather obtuse, scarcely produced at the base; petals short, obovate,—the 2 lateral and the lower thinly bearded, multistriate.—Leaves thickish, almost of an equal length and breadth, elegantly cordate and subacute, mostly incumbent on the ground, about an inch long, and equally broad; stipules minute, subulate; segments of the calix short and narrow, somewhat oblong; petals rosaceous blue; capsule smooth, stigma small, rostrate and depressed, not margined all round. About 3 or four inches high; growing in dry woods on the banks of the Schuylkill near Philadelphia. Flowering in May. My friend Z. Collins, has long known this plant and considered it as a distinct species; it appears, however, allied to *V. villosa* of Walter, and is decidedly the *V. sororia* figured in the Hortus Berolinensis, although the leaf is said to be pubescent beneath instead of above.

The *V. papilionacea*, and *V. asarifolia* of Pursh, are probably ambiguous varieties of *V. cucullata* and *V. palmata* Whether *V. clandestina* of the same author be really a distinct species is also equally uncertain, it appears to me nothing more than a smoother variety of *V. villosa*, if the petals of this plant were indeed "chocolate brown," that alone would be a sufficient character, but such anomalies are scarcely to be expected.

7. *rotundifolia*. Michaux,- excluding the synonym of Pursh's *V. clandestina*. In this species, so accurately described by Michaux, the leaves are unusually thick, large, and round, constantly appressed to the ground, with a pubescent petiole, and the sinus more closed than in any other species; the flowers, which are of a pale yellow, appear before the complete expansion of the leaves, upon short peduncles; the segments of the calix are oblong; obtuse; the 2 lateral petals are a little bearded and striate; striæ, 3 upon each, the uppermost interrupted by the line of pubescence; the lowest petal is uncommonly small, and also striate, the striæ bifid and crossed by 2 yellow callous converging lines near the base; nectary almost obliterated; style short and thick, capitulum of the stigma small and smooth, recurved at the apex, but without rostrum. Hab. On the shady and rocky banks of Wishahikon creek, about 8 miles from Philadelphia, where it was also found by Mr. Rafinesque; always under the shade of *Abies canadensis;* in similar situations I have also seen it in the mountains of North Carolina.

8. *blanda*. Leaves nearly smooth, or slightly pubescent on the upper side, petiole and under side entirely glabrous, nerves pinnate, also smooth; flowers white, and odorous, segments of the calix linear-oblong, obtuse; stigma capitate, depressed, recurved, acutely margined around, petals all smooth.

9. *primulifolia*. Linn. Persoon, Elliott, excluding the synonym of Mr. Pursh, which appertains to another species. This plant is very nearly allied to *V. lanceolata*, and as such has probably been considered by Walter, Michaux, and Pursh; both of them are indigenous to Siberia as well as North America. It also makes a near approach to *V. blanda*. Leaves oblong, subcordate, crenate, obtuse, the base remarkably and abruptly decurrent on the petiole, so as to resemble the leaves of *Primula veris;* nerves pinnate, mid-rib on the upper side of the leaf with a few scattered hairs; petiole on the under side as well as the nerves on the same side, and the scape hairy; segments of the calyx obtuse; the 2 lateral petals a little bearded, flowers odorous.

10. *lanceolata.* Leaves perfectly smooth, acute and subserrate, gradually attenuated down the petiole; segments of the calix acute; petals all beardless; stigma recurved, distinctly rostrate, capitulum roundish almost without margin. Flowers inodorous.

§ II. *Producing stems.*

11. *canadensis.* Style short, compressed, stigma capitate, without rostrum, on either side somewhat pubescent.

12. *striata.* Nerves of the leaves somewhat pubescent on the under side, calix ciliate, nectary rather large, 2 lateral petals densely bearded; stigma tubular, recurved, a little pubescent on the summit. Flower yellowish white.

13. *debilis.* Pursh. *V. canina*, Walter. Stem decumbent, leaves reniform-cordate, serrulate or crenate, smooth on the under side, base cucullate; petiole short; stipules ovate-lanceolate, serrate-ciliate, peduncles very long; segments of the calix linear-lanceolate, acute, smooth; petals oblong, pale blue, the 2 lateral ones bearded; stigma small, tubular, recurved, rostrate, with scabrous papillæ on the summit. Nearly allied to the preceding.

14. *rostrata.* Nectarium longer than the corolla, petals all beardless; stigma smooth, erect, attenuately clavate, without rostrum. Leaves smooth on the under side. Flowers pale blue, externally purplish.

15. *pubescens.* *V. pensylvanica.* Mich. Leaves either very pubescent, or nearly smooth, subserrate; stipules ovate, mostly entire; style compressed, stigma roundish, almost spherical, with 2 lateral tufts of pubescence, and without rostrum. Fruit smooth. *β. eriocarpon.* Fruit densely villous; stipules smaller. In fruit this would be taken for a distinct species, as the character is constant; in any other respect it does not materially differ from *V. pubescens*; both these varieties are abundant near Philadelphia.

16. *tripartita.* Elliott. Leaves 3 to 5-lobed, pubescent, lobes subserrate; stipules ovate, entire or serrulate; peduncle rather long and slender; flowers yellow; stigma the same as in *V. pubescens*, to which it appears very closely allied.

17. *hastata.* Leaves commonly cordate-ovate, acute, rarely hastate, (or a distinct variety) margin subserrate; petiole very short, peduncle 2 to 3 inches long; petals yellow, externally purplish, the 2 lateral ones bearded; stigma as in *V. pubescens*, to which this species also is not inconsiderably related; this plant is however always smooth with elongated leaves, often marked with discoloured pale blotches.

18. *Nuttalli*. Pursh. Perennial. Stem simple, erect and leafy, 4 to 6 inches high. Leaves lanceolate-ovate, entire, attenuated down the petiole, opaque, margin and nerves minutely pubescent, leaf and petiole 3 to 4 inches long, scarcely half an inch wide. Stipules long, linear lanceolate, entire. Flowers small, yellow, petals purplish on the under side. Segments of the calix linear lanceolate, acute. Stigma capitate, erostrate, nearly smooth. Flowering in May. Near the confluence of Rock river and the Missouri, and from thence to the mountains. This is the only species of *Viola* on the plains of the Missouri, from the confluence of the river Platte to Fort Mandan.

19. *bicolor?* Hoffman. Flor. German. 2. p. 170. Pursh. 1. p. 175. *V. arvensis*. Elliott, p. 302. Annual. Stem simple, erect, acutely triquetrous. Radical leaves spathulate-oval, with a few denticulations, upper leaves spathulate-lanceolate, or ovate, smooth. Stipules large, cristate-palmate, ciliate, deeply 7 to 9-lobed, segments linear-oblong, terminal one much larger. Peduncle long, quadrangular. Calix divisions ovate-lanceolate, acuminate, ciliate. Petals much larger than the calix, obovał, rather flat, bluish-white, the 2 lateral ones, cristately bearded, the lower petal dilated, marked with 5 blue striæ, at the base a yellow spot. Style short, nearly central, articulated at the base; stigma turbinate-capitate, erostrate, slightly pubescent at the sides, foramen large. Capsule nearly round. Closely allied to *V. tricolor*. Apparently native.

20. *concolor*. Forster. Calix nearly equal with the petals, naked, or not produced at the base, divergent; petals all emarginate and connivent, the lower one bilobed, and not produced behind into a spur or nectary; anthers connate; capsule large; seeds pale, subglobose. Stem erect, roundish; leaves erect, numerous, scattered, sessile, cuneate-lanceolate, acuminate, pubescent, irregularly toothed on the upper part, attenuated below so as to appear subpetiolate; nerves strong, irregular or alternate; stipules subulate; peduncles very short, about 3-flowered; flowers greenish, appearing in April and May. HAB. From Pennsylvania to Upper Lousiana. Probably a distinct genus?

Of this genus there are 21 species in Europe; 2 at the Cape of Good Hope, one of them suffruticose, and both very doubtful as genuine species of *Viola;* 1 in the island of Luçon, one in Teneriffe; another in the island of Maclovian, another in India; 2 shrubby species in Chili, 1 in Tierra del Fuego; 3 doubtful species (as *Viola*,) in the tropical parts of America, one of them a scandent thorny shrub, with peduncles bearing many flowers! In the subgenus IONIA of Persoon there are 6 species in the tropical parts of America, including among them the *I. Ipecacuanha,* said to produce the *white* Ipecacuanha of commerce, there are also two other species in India.

The genus *Viola,* within its proper limits, is almost equally divided betwixt Europe and the temperate parts of North America; the few other species in India and the tropical parts of America appear to indicate more than one distinct genus; it is even probable that *Viola* heretofore very unnaturally associated with the *Cisti!* will at last become the type of a natural order.

226. CLAYTONIA. *Gronovius. L.*

Calix biparted. *Petals* 5. *Stigma* trifid. *Capsule* 1-celled, 3-valved, 3 to 5-seeded. *Seeds* reniform.

Herbaceous and somewhat succulent plants; roots mostly tuberous and perennial, rarely annual and fibrous; leaves radical; scape producing a single pair of opposite leaves, the upper part racemose, many-flowered, petals emarginate or bifid. (Germ in *C. virginica,* mostly 5-seeded.)

SPECIES. 1. *C. virginica* 2. *spathulæfolia.* (*C. caroliniana?* Mich. *C. lanceolata?* Pursh) Abundant round Pittsburgh, and appears to supercede *C. virginica* as we proceed westward. 3. *alsinoides.* 4. *perfoliata.*

A North American genus, with the exception of *C. sibirica; C. lanceolata* of Pursh extends into Siberia, and *C. perfoliata,* which is annual, exists also in the island of Cuba within the tropic.

227. RHAMNUS. *L.* (*Buck-thorn.*)

Calix urceolate, 4 or 5-cleft. *Petals* 4 or 5, minute, in the form of scales opposite the stamina (sometimes 0.) *Stigma* 2 to 4-cleft. *Berry* 3 or 4-seeded. (Flowers mostly polygamous and dioicous.)

Small trees or shrubs, with the lesser branches often terminating in spines; leaves somewhat opposite, frequently alternate. Flowers axillary, lateral, and terminal; peduncle one or many-flowered, flowers obscurely coloured and inconspicuous.

SPECIES. 1. *R. alnifolius.* 2. *carolinianus.* 3. *lanceolatus.* Plentiful around New-Orleans. 4. *minutiflorus.* Flowers in terminal panicles. This species by the habit can scarcely appertain to the genus.

Of Rhamnus there are 11 species chiefly in the south of Europe, 2 in Siberia, 5 in Africa and its islands, 10 in the warmer parts of America, 1 in New-Zealand, 1 in the Azores, 2 in China, one of which is common to India; of these the *R. theezans* passes as a substitute for tea among the indigent Chinese.

228. ZIZYPHUS. Tournf. (Supple-Jack.)

Calix 5-cleft. Petals 5, resembling scales inserted into the glandulous calycine disk. Styles 2. Drupe 2-celled, one or two seeded, one of the cells and seeds often abortive.

Small trees or shrubs with alternate leaves; flowers axillary and terminal. Nearly allied to Rhamnus.

SPECIES. 1. *Z. volubilis.* (*Œnoplia volubilis.* Persoon.) Stem shrubby, twining, racemes many-flowered, axillary and terminal; flowers dioicous.

Of Zizyphus, there are 6 species in India, 1 in China, 3 in Africa, 1 in Europe, 1 in the Antilles, and another in Peru. The fruit of *Z. Lotus* is eaten by the Africans, and that of *Z. Jujuba* by the natives of India.

229. CEANOTHUS. *L.* (New-Jersey tea, Red-root.)

Calix turbinate, 5-cleft. Petals 5 squamiform, with long claws. Stigmata 3. Capsule 3-angled, 3-celled, 3-seeded, tripartile, opening on the inner side.

Suffruticose or shrubby; leaves alternate; flowers copious, axillary and terminal in pedicellate panicles corymbosely or dichotomously divided; calix coloured, persistent, segments arched inwards, glandulous disk 10-toothed. Flowers white. Roots large and very thick, reddish and astringent. Nearly allied to the genus *Pomaderris* of New-Holland.

SPECIES. 1. *C. americanus.* 2. *intermedius*, PH. 3. *sanguineus*, PH. Suffruticose; leaves oblong-obovate serrate, under side pubescent, panicle short and axillary; flowers crowded, subfastigiate.—On the banks of the Missouri, abundant below the confluence of the river Platte. Near the Rocky Mountains.—*M. Lewis.* A much larger plant than C. *americanus*, which it considerably resembles; the leaves are equally large, but speaking from recollection only, I think they are nearly sessile, and remarkably oblong; the branches reddish, surviving the winter, and forming a shrub about 3 feet high. 4. *microphyllus.* Stem rigid and much branched, leaves fasciculated, smooth and lucid, scarcely larger than those of *Thymus serpyllum.* Chiefly inhabiting the sandy and open pine forests of Georgia. 5. **Serpyllifolius.* Decumbent and suffruticose; branches filiform; leaves small, elliptic-ovate, serrulate, obtuse, petioles and nerves on the under side strigose; panicles pedicellate, axillary, few-flowered; flowers conglomerated. HAB. Around the town of St. Marys, in Florida.—Dr. Baldwyn. By much the smallest species of the genus. Leaves and stems not much exceeding those of Thyme, early leaves somewhat crowded, oval, or roundish, succeeding leaves distant, all obtuse and nearly smooth; flowers white, partly capitulate at the summit of a pedicell, 1 and a half to 2 inches long, only about from 12 to 15 together.

The genus *Ceanothus* appears peculiar to America; of which there are 5 other species besides the above; viz. 1 in New-Spain, 2 in Peru, 1 in the mountains of Jamaica, and another species of uncertain locality. The *C. asiaticus, C. circumscissa* of India and *C. africanus* do not appear to belong to this genus, and *C. capsularis* of the isle of Taheiti in the Pacific, seems to be a *Pomaderris.*

230. EUONYMUS. *L.* (Spindle-tree.)

Calix 5-parted, or 5-cleft, its base inside, covered with a flat peltate disk. *Petals* 5, spreading, inserted on the outside margin of the glandular disk. *Capsule* 5-angled, 5-celled, 5-valved, coloured, septiferous in the centre, cells 1 or 2-seeded. *Seeds* calyptrate (or arillate?)

Erect or rarely subsarmentose shrubs, with quadrangular branches; leaves opposite, minutely stipulate; peduncles axillary, solitary, opposite, 3-flowered, or trichotomous and many-flowered.—Flowers often tetrandrous and tetrapetalous, greenish or brown; capsule sometimes 3 or 4-celled, crimson; seeds covered with a scarlet pulpy arillus.

SPECIES. 1. E. *americanus.* *β. sarmentosus.* Subsempervirent; stem sarmentose, often radicant, acutely quadrangular; leaves subsessile, opaque, ovate-lanceolate acute, obtusely serrate, serratures for the most part undulated; peduncles about 3-flowered; flowers 5-petalled; fruit scabrous.—Leaves somewhat shining, and remarkable for their opacity; fruit of the usual brilliant colours; theca bursting from the centre.—Generally in shady moist forests, amongst rocks. The singular habit of this plant almost indicates a specific distinction, for the present, however, I cannot consider it as any thing more than a permanent variety.

2.* *obovatus.* Stem prostrate radicant; sureuli erect, obtusely quadrangular, marked with 4 distinct lines; bark and calix inflated, leaves broad-obovate, obtuse, acute at the base, subsessile, margin acutely serrulate, flat; peduncles 3-flowered; stamina 4 and 5.—A very distinct species, though proximately allied to *E. americanus*. OBS. Stem about a foot high, nearly simple, or with a few short and opposite branches appearing truncated at their extremities, by the inflation of the bark; leaves nearly opaque, cuneate-obovate, often dilated so as to appear nearly as broad as long, margin finely and acutely serrulate, serratures and nerves on the upper side minutely hispid (seen through a lens), marginal nerves of the petiole decurrent on the stem, forming the sole ligatures of attachment betwixt the inflated bark and the wood; calix inflated, nearly entire, or crenate, membranaceous; petals 4 and 5, roundish, green, with a tinge of purple; anthers sessile. I have not seen the fruit.—HAB. In shady fir swamps betwixt Franklin and Waterford, Pennsylvania Flowering in June.

3. *angustifolius.* 4. *atropurpureus.* Theca smooth, opening marginally.

Of this genus there are 2 other species in Japan, and 3 in Europe.

231. CELASTRUS. *L.* (Staff-tree.)

Calix 5-lobed. _Corolla_ 5-petalled. _Stamina_ situated around a 5-toothed glandulous disk. _Style_ thick, perforate; _Stigmas_ 3. _Capsule_ (theca) 3-sided, 3-celled, 3-valved, valves septiferous in the centre; cells 1 or 2-seeded. _Seeds_ semiarillate, arillus 4-cleft.

Small trees or shrubs, erect or scandent, unarmed, or spiny; leaves alternate, entire, minutely stipulate, stipules sometimes divided; peduncles solitary or aggregated 1-flowered, also racemose, paniculate or cymose, axillary or terminal. Some of the species are polygamous-dioicous. (Two or three genera are probably confounded in *Celastrus*).

SPECIES. 1. *C. bullatus.* No where to be met with in North America. 2. *scandens.* OBS. Dioicous; racemes terminal; pedicells circularly articulated. Male flowers in a compound raceme, the pedicells mostly 3-flowered; calix shortly companulate; stamina alternating with the petals. (Flowers odorous.) Female raceme simple, pedicells bracteate, bractes setaceous, minute; flowers larger, turbinate-campanulate, with 5 very short infertile stamina seated around the glandulous disk; style about the length of the calix, thick, cylindric and perforate; stigmas 3, reniform; capsule roundish-obovate, slightly marked with 3, 4, or 5 furrows, with the same variable number of valves; valves semiseptiferous in the middle, 2-seeded, septum not continued to the centre; seeds arillate, attached to the base of the capsule; arillus pulpy, 3-sided, produced at the base, open at the top, entire, connivent over the seed, when mature scarlet, seeds often all abortive but one. Leaves alternate, stipules 3 to 5-cleft, minute, setaceous. This species is also indigenous to Japan, according to Thunberg.

Of this genus there are 6 species in Chili and Peru, 17 in Africa, chiefly at the Cape of Good Hope, 4 in Japan, 2 in Arabia Felix, 1 in the Canary islands, and another in the Marquis islands of the Pacific ocean.

†††††† *Flowers incomplete.*

232. HAMILTONIA. *Willd.* (Oil-nut.)

Dioicous.—HERMAPH. *Calix* turbinate-campanulate, 5-cleft. *Corolla* 0? *Germ* immersed in the 5-toothed glandulous disk. *Style* 1; *stigmata* 2 or 3, sublentiform. *Drupe*, pyriform, 1-seeded, inclosed in the adhering base of the calix. MALE flower nearly similar to the hermaphrodite.

A shrub with the habit of *Celastrus*, to which it is intimately allied. Leaves alternate entire, stipules none? raceme terminal, flowers apetalous?

SPECIES. 1. *H. oleifera.* Rare. On the margins of the mountain rivulets; in the central and highest chains of mountains, from Pennsylvania to Georgia.—Root, surculose penetrating very deep; leaves oblong-obovate, acuminate, 2 to 3 inches long, 1 to 1 1-2 wide, petiolate, pubescent and strongly veined on the under side. The young leaves within the bud appear silky. Pedicells circularly articulated at the base. Calyx of the male flower shortly campanulate; glandular disk penetrating and filling the tubular attenuated base of the calix. Hermaphrodite, calix turbinate-campanulate, 5-cleft, segments ovate, reflected, glandular disk more conspicuous; stamina opposite the divisions of the calix, and alternating with the dentures of the disk. Nut depressed globular, 1-celled, 1-seeded, inclosed in the carneous base of the calix, appearing inferior, from its immersion in the disk, adhering calix conspicuously veined; shell of the nut whitish, thin, a little verrucose, sharply acuminated by the persistent base of the style, as in the capsule of *Celastrus scandens*. Perisperm large, very oily, acrid to the taste (probably cathartic,) its substance somewhat lamellated; corculum minute, at the base. The germ has probably more than one seed. The whole plant is more or less oily, in consequence of which the deer and domestic cattle devour it with avidity.

Celastrus macrocarpus of Peru appears to be a second species of this genus.

233. *COMANDRA.† Thesium. *L.*

Calix angular, tubular-campanulate, coalescing with an internal 5-toothed, glandulous disk. *Petals* 5, ovate, ingrafted upon the margin of the calix, persistent. *Anthers* attached to the petals by a tuft of filaments! *Germ* 3-seeded, immersed in the glandulous disk. *Capsule* valveless, 1-seeded, coated by the base of the calix.

Perennial, root ligneous, stem herbaceous; leaves simple, alternate, stipules none; radical gemmaceous scales numerous, persistent; flowers in a corymbulose terminal panicle.

Species. 1. *C. umbellata.*

Thesium umbellatum. Linn. Willd. Sp. Plant.

Stem round and erect, sending out 2 or 3 infertile branches below the panicle. Leaves approximating, erect, oblong-ovate, obtuse, smooth, reflected on the margin, and reticulately veined. Panicle short, ramuli axillary, corymbulose, corymbs about 5-flowered, with 4 involucrate bractes, uppermost peduncles fewer flowered. Calix uniting with the glandulous and nectariferous germinal disk; disk 5-toothed, obtuse. Petals 5, calycine, often 4 and 6, with the same number of stamina, ovate, acute, persistent, growing to the margin of the calix, white, internally villous (seen through a lens), before expansion parallel. Stamina seated at the base of the petals, alternating with the dentures of the glandulous disk; filaments subulate, about half the length of the petals; anthers oval, 2-celled, connected at their summits to the petals near their base by a fascicle of yellow filaments—Style terete, simple; stigma round, entire; germ about 3-seeded, ovula pendulous, attached to the apex of a filiform contractile funiculus arising from the base of the capsule. Capsule nearly globular, and angular, 1-seeded, not opening, thin and brittle, not osseous, coated by the base of the calix. Seed round, about the size of a small pea, consisting almost entirely of a large carnose and oily perisperm, embryon inverted, small, flat, nearly in the axis of the perisperm; radicle superior, thick and obtuse; cotyledons linear and acute.

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† From *κόμη*, *a head of hair*, and *ανηρ*, *a man*, by analogy, the masculine organs of plants, or stamina;—in allusion to the singular structure of the anthers.

Obs. The connecting fibres of the petals, appear to be a separation of a portion of the central vessels, for at that point the petal is greenish and callous, and the central nerves there commencing trichotomously, disappear above the connectile fibres, and the rest of the petal is then white.

This plant has some relation to the preceding, and they both appertain to the Natural Order Santalaceæ of R. Brown, approaching at the same time very nearly to the Rhamnei of Jussieu. The genus here proposed may probably include some of the species of *Thesium* indigenous to the Cape of Good Hope.

234. QUERIA. *L.* Anychia. *Michaux.*

Calix connivent, 5-parted, segments oblong, apex subsaceate (or furnished with an arched callosity.) *Corolla* none. *Filaments* of the anthers distinct; intermediate, setæ none. *Stigma* subcapitate. *Capsule* utricular, not opening. *Seed* 1, subreniform.

Herbaceous and dichotomous; leaves opposite, stipulate; stipules scariose, flowers minute, brasteolate, dichotomal and terminal; stamina 3 to 5. A genus scarcely distinct from *Paronychia*, intermediate with it and *Herniaria*.

Species. 1. *Q. canadensis.* Stem erect or spreading, dichotomous, much branched, retrorsely pubescent; leaves nearly glabrous, cuneate-oblong, acute; flowers erect, shorter than the stipules.—Stamina 3, rarely 5; leaves (through a glass) subciliate.

2. **capillacea*. Erect and glabrous, dichotomously and diffusely branched, branches capillary; leaves ovate, very smooth, attenuated towards the base, rather obtuse; flowers spreading, longer than the stipules.—Stamina 3, rarely 5. Both these species are annual.

Of this genus there are 2 other species enumerated by Persoon, namely the *Q. Hispanica* and *Q.? trichotoma* of Japan.

235. PARONYCHIA. *Tournefort* and *Jussieu*. ANYCHIA. *Michaux*.

Calix 5-parted, segments acuminate from below the internal apex, (or subsaccate) and coloured on the inner side. *Corolla* none. Five filaments alternating with the stamina. *Style* bifid; stigmata capitate. *Utriculus* 1-seeded, summit hemispherical, sometimes valvular? covered by the connivent calix.

Herbaceous, cespitose or procumbent plants; leaves opposite, and stipulate; flowers cymose or terminal, greenish or calycine, lined with a petaloid membrane separating from the calix at its summit.

SPECIES. 1. *P. Herniaroides*. 2. **dichotoma*. Cespitose and procumbent, glabrous. leaves acerose, linear, acute, on either side marked with two grooved lines; stipules bifid, bractes shorter than the flowers; cyme dichotomous; segments of the calix minutely mucronate.

Achyranthes dichotoma. LINN. *Illecebrum dichotomum*. WILLD.

Leaves about an inch long, half a line wide, somewhat thick and flat; stipules bifid, a little shorter than the leaves, white, chaffy, with subulate capillary points. Leaves on the infertile branches imbricately crowded, on the flower stems remote. Flower stellate; segments of the calix furnished internally with arched scales near the summit, points pungently acute. Sterile setæ, short; style bifid. Utriculus not spontaneously valvular, smooth. Seed reniform; perisperm farinaceous; cotyledones linear, incurved, green.—The habit of this plant is somewhat like *Sedum reflexum*, but not succulent.

HABITAT. On slate rocks, by the margin of the river Shenandoah, Virginia, in the vicinity of Harper's Ferry.

Flowering from August to November. A very elegant perennial, but not suffruticose, as described by Linnæus.

3. *argyrocoma.* Cespitose, procumbent and pubescent; leaves linear, pungently acute, villous, and nerveless; stipules entire; bractes equal with the flowers; cyme dichotomous, crowded, interior apex of the calix bearded, exterior setaceously acuminate.

Smaller than the preceding to which it is very nearly related; the cyme in this species resembles a capitulum, being almost obscured by the numerous and crowded bractes; the points of the calix are nearly its length. Sterile setæ short; style bifid; utriculus pubescent at the summit, and without valves.

On rocks, in the mountains of upper Carolina, and on the banks of French Broad river, in Tennessee, near the thermal springs.

4. **sessiliflora.* Cespitose and diffusely branched; leaves glabrous, very short, linear, reflected and acute; stipules subulate, irregularly lacerate, nearly equal with the leaves; flowers terminal sessile, internal points of the calix arched, external capillary attenuated.

Densely cespitose and smooth, leaves without visible nerves. Flowers irregularly crowded at the summits of the branches, not cymose. Style bifid; utriculus not valvular; sterile setæ 5.

On the highest hills of the Missouri, near Fort Mandan. Flowering from June to September. Nearly allied to *Herniaria.*

To this genus is referrible *Illecebrum Paronychia* of the south of Europe, said to have a capsular utriculus of 5 valves? several other species of that genus also probably belong to this.

236. GLAUX. *L.* (Black Salt-wort.)

Calix campanulate, 5-lobed, coloured, inferior. *Corolla* none. *Capsule* globular, surrounded by the calix, 1-celled, 5-valved, 5-seeded; receptacle rounded, marked with favulose punctures.

An herbaceous, creeping, maritime plant with opposite oblong leaves, and small axillary subsolitary sessile flowers.

Species. 1. *G. maritima.* A genus consisting of a single species found on every sea-coast of the northern hemisphere within the temperate regions.

II. DIGYNIA.

† *Flowers monopetalous, inferior.*

237. **ECHITES.** *Jacquin. Linn.*

Contorted.—*Calix* 5-parted, small. *Corolla* salverform, border 5-cleft, orifice naked. *Anthers* rigid, acuminate, convergent into a cone, "cohering to the stigma by the middle." R. BROWN. *Style* 1; *stigma* annulate, capitulum 2-lobed. *Follicles* 2, very long and straight. *Seed* comose.

Shrubs, mostly twining, some species exuding a lactescent sap; leaves opposite; peduncles axillary or terminal, one or many-flowered; flowers umbellate, corymbose or spiked; corolla as in *Nerium, Vinca, Amsonia, Periploca,* &c. contorted, or spirally involute before expansion.

SPECIES. 1. *E. difformis.* Flowers small and greenish-yellow. Calix angular at the base. Corolla lined with a silky villus around the orifice. Anthers simple, seated around the mouth of the tube, linear-sagittate, very acute and rigid. Style 1, as long as the stamens; stigma annulate, 2-lobed, viscid. Germ surrounded at the base by a glandular 5-toothed torus.

This genus of 29 species, according to Persoon, is peculiar to the tropical parts of America, with the exception of 2 species in India, and 2 of a doubtful genus at the Cape of Good Hope, being succulent and furnished with axillary thorns.

238. **APOCYNUM.** *L.* (Indian-Hemp.)

Calix very small, 5-cleft, persistent. *Corolla* campanulate, half 5-cleft, lobes revolute, furnished at the base with 5 dentoid glands alternating with the stamina. *Anthers* connivent, sagittate "cohering to the stigma by the middle." R. BROWN. *Style* obsolete; *stigma* thick and acute. *Follicles* long and linear. *Seed* comose.

Erect and herbaceous plants, or shrubby and twining, with opposite leaves; flowers corymbose or paniculate, axillary or terminal. Corolla with 5 nectariferous depressions near its base.

SPECIES. 1. *A. androsæmifolium.* 2. *cannabinum.* 3. *hypericifolium.* These 3 species are very nearly allied to each other, and might almost be taken for so many varieties. They have all likewise the property of mechanically entangling flies by the proboscis which is retained in the acute fissure of the anthers. They afford by incision a lactescent fluid, which when sufficiently dried exhibits all the properties of Gum Elastic or Kaoutchouk, supposed at one time to have been the exclusive property of the *Urceola elastica,* but common, probably, to most of the lactescent APOCINEÆ, and perhaps many more of the EUPHORBIACEÆ than the *Siphonia elastica,* of Brazil and Guiana.

Of this genus there are several other species in South America, India, and the Cape of Good Hope, and 1 species, *A. venetum,* said to be indigenous to the islands of the Adriatic.

239. PERIPLOCA. *L.*

Calix minute, 5-cleft, persistent. *Corolla* rotate, flat, 5-parted, orifice surrounded with an urceolate 5-cleft crown, terminating in 5 filiform appendices or awns. *Style* 1; stigma capitate with 5 angles. *Follicles* 2, ventricose. *Seed* comose.

Shrubs, many of them climbing; leaves opposite; flowers subcorymbose, axillary or terminal.

SPECIES. 1. *P. græca.* Naturalized or indigenous in the western part of the state of New York. Flowers brownish, sometimes 7-cleft, segments of the corolla each marked with a villous oblong central spot; stigma with 10 crenatures.

The rest of this genus belongs to India and Africa. The *P. græca* exists in Syria and Siberia, as well as in North America.

240. GONOLOBUS. *Michaux.*

Corolla rotate, 5-parted. *Lepanthium*† (or nectary) simple, cylindric, subcarnose, 5-lobed, depressed, exactly equal with the antheridium (antheroid cells) discoid, pentangular, without alated lateral margins or terminal membranaceous cusps. *Pollinia* (masses of pollen) 5 pair, even, transverse. *Follicles* 2. *Seed* comose.

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† Literally, in the plural, *flower-scales,* (from λεπις, a scale, and ανθος, a flower,) intended to designate generally, the interior corolla or petaloid nectarium of Linnæus. In this place it is the same as the *corona staminea,* "stamineous crown," of R. Brown; but used only by him to point out the very singular lepanthium which exists in the order ASCLEPIADEÆ.

Herbaceous and twining plants, with opposite leaves; flowers axillary, umbellate. Nearly allied to *Cynanchum* in some respects; and particularly to the North American species, but very distinct in the parts of fructification, having a depressed or discoid antheridium, without either lateral or terminal produced margins, and receiving the pollinia transversely, but still attached as is usual in *Cynanchum* and *Asclepias*, by pairs to the upper angles of the stigma.

SPECIES. 1. *G. macrophyllus*. 2. *hirsutus*. Flowers brown, segments of the corolla linear-oblong, follicles muricate, with soft spines; the whole plant pubescent; sarments and petioles hirsutely hairy; leaves cordate-oval, distinctly acuminate. 3. *carolinensis*. Stem twining and with the petioles hirsutely hairy, the whole plant pubescent; leaves ovate-cordate, acute, somewhat acuminate; segments of the corolla ovate-obtuse; flowers yellowish, umbellate.—The leaves are not hirsute but covered on both sides with a minute pubescence. Pollinia transverse It is nearly allied to the preceding, but very distinct in the flower; with the fruit I am unacquainted.—In the vicinity of Savannah.—*Dr. Baldwyn.*

4.* *viridiflorus*. Every where smooth; stem twining; leaves subreniform-cordate, acuminate upon longish petioles, base auriculate; segments of the corolla linear-oblong, oblique, obtuse, greenish, follicles ribbed. HAB. On the banks of the Mississippi, near St. Louis, &c. *v. s.* in Herb. Lambert. London.

Hitherto an American genus.

241. CYNANCHUM. *L.* (Dog's-bane.)

Calix 5-toothed, very small, and persistent. *Corolla* rotate. *Lepanthium* simple, cylindric, "5 to 20-lobed," (R. BROWN,) surrounding the orifice of the tube. *Stamina* as in *Asclepias*. *Stigmata* 2. *Follicles* 2. *Seed* comose.

Habit similar to *Gonolobus*, but many of the species are shrubby.

SPECIES. 1. *C. leve?* stem erect, subsarmentose, marked with an alternating pubescent line; leaves smooth, subcordate-ovate, acutely acuminate, sinus at the base, nearly closed; margin and nerves on the under side, minutely pubescent; petiole very short; peduncle long; umbell interrupted, compound, umbelluli few-flowered; segments of the corolla, oval-oblong, obtuse; follicles smooth? —Lepanthium cylindric, retusely 5-toothed, nearly entire. Possessing all the habit of *Asclepias Vincetoxicum.* Flowers small, greenish white.

Probably *Gonolobus levis.* MICH. 1. p. 119.

2. *angustifolium.* Stem twining, smooth; leaves smooth, narrow, and linear, thickish; umbell upon a long peduncle; segments of the corolla lanceolate.—Lepanthium cylindric, obtusely 5-toothed. Follicles—? Flowers small and greenish.

Ceropegia palustris. PURSH. 1. p. 184. From Carolina to Florida twining round rushes and other marsh plants.

The genus *Cynanchum* appertains principally to the warmer regions of America, a smaller number to India and Africa, 2 to the south of Europe, exclusive of *Vincetoxicum* so closely allied to this genus; and 1 species even extends to Siberia. Cynanchum is not altogether destitute of medical economy; the root of *C. Ipecacuanha* of Ceylon and the isle of France is used as an emetic in doses of 24 grains, and it has recently been discovered in France that the Senna of the shops was in reality the leaves of a species of *Cynanchum* disguised by an useless admixture of those of the *Cassia Senna.*

242. * ENSLENIA.†

Calix small, 5-parted, persistent. *Corolla* 5-parted, segments connivent, erect. *Lepanthium* simple, 5-parted, petaloid, divided to its base, segments truncate, flat, each terminated by 2 central filaments. *Stamina* as in *Asclepias. Pollinium,* lobes subcylindric, laterally stipitate. *Style* 0. *Stigma* conic, subbilamellate. *Follicles* 2, small?

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† In memory of the late Mr. Aloysius Enslen, an assiduous and practical botanist, patronised in his researches in the United States by Prince Lichtenstein of Austria, and to whom Mr. Pursh was frequently indebted for many of the rarer plants of the Southern States.

A genus approaching *Cynanchum* and *Asclepias.*

Stem herbaceous, twining, leaves opposite; flowers axillary, corymbose.

E. albida.

DESCRIPTION. Root perennial. Stem herbaceous, twining, marked with an alternating pubescent line. Leaves opposite, smooth, cordate-ovate, acute, somewhat acuminate, sinuate at the base, slightly pubescent on the margin, and sometimes along the nerves, from 1 to 2 inches long, and 1 to 2 wide, petiole about an inch. Corymbs axillary, many flowered, upon long peduncles, several often from the same axill; pedicells and calix pubescent. Calix 5-parted, segments lanceolate-ovate. Corolla 5-parted, greenish or yellowish-white, divisions connivent, erect, linear-oblong, somewhat obtuse. Lepanthium (nectary, L.) 5-parted, petaloid, segments divided down to the base, flat, oblong, and truncated, sometimes 4-toothed, the 2 central dentures or incisions terminating in filiform awns. Pollinia (masses of pollen) 5 pair, pendulous, and even as in *Asclepias,* suspended to the angles of the stigma, cylindric-oblong, much shorter than the antheridium, diaphanous, above united together by a small black cloven tubercle, alternating in the antheroid cells, each pair being common to 2 antheroid bodies. Antheridium (antheroid bodies) short and crustaceous, with salient margins, each lobe terminated by a broad, ovate, white, chaffy cusp. Style none. Stigma conic, subbilamellate, seated upon the disk of the antheridium. Follicles 2, short, ovate? not more than a few lines long? seed comose?

HABITAT. Near Shepherdstown, on the gravelly banks of the Potomac, Virginia. Abundant in certain localities, on the high sandy banks of the river Scioto, &c. also near Cincinnati, (Ohio) ascending to the height of 8 or 12 feet. Flowering in July and August. An occidental plant, or confined to the western side of the Alleghany mountains, always on alluvial soil. Flowers ochroleucous, with a melliferous scent. Stem like most of the APOCINEÆ, affording flax.

243. ASCLEPIAS. *L.* (Wild-Cotton, Swallow-wort.)

Calix small, 5-parted, persistent. *Corolla* rotate, mostly reflected. *Lepanthium* (nectary, L.) simple, 5-parted, segments ovate, cucullate, each producing from its base an internal subulate averted awn. *Antheridium* 5-parted, crustace-

ous, sessile, angles opening by 5 longitudinal chinks. *Follicles* 2, ventricose, acuminate, smooth or muricate. *Seed* comose.

Shrubby or herbaceous, stems erect; leaves opposite, or alternate, rarely verticillate; peduncles axillary and terminal, solitary; flowers in umbells, numerous.—*Antheridium* (antheroid cells, anthers, of some) conic-cylindric, (resembling the 5 united anthers in Syngenesious florets,) sessile or subsessile, crustaceous, separable only by five longitudinal chinks, into 5 lobes, connected to the stigma both above and below, lobes antheroid, 2-celled, cells open, margin reflected, salient, terminating above in membranaceous ovate cusps. *Pollinia* (concrete masses of pollen) 5 pair, even, suspended from the angles of the stigma, clavate, compressed, diaphanous, solid and concrete, of a yellow, waxy substance, united together by a small, black, cloven tubercle; alternating in the cells of the antheridium, each pair being common to 2 lobes. Style none. Stigma discoid, pentagonal. Follicles smooth, or muricated with soft and flexible spines (as in *A. syriaca*, &c.) Seeds pendulous by the coma, obtusely obovate and compressed, or subelliptic, surrounded by a double winged margin; perisperm thin and carnose; embryon flat; radicle inverted. Receptacle free, with lateral, imbricated, longitudinal lamella for the reception of the seminal coma.—The flowers of the larger species of this genus have the property of mechanically detaining small insects. The *Musca domestica* or common house-fly is in general the subject of this cruel accident, and may frequently be seen tortured by the flowers of *Asclepias syriaca*, and *A. incarnata;* they are uniformly held by the tarsi, which get hooked into the minute chink existing in the connecting tubercle or clasp of the pollinium.—All the species of this genus afford a silky flax, and generally a lactescent sap.

† *Leaves opposite.*

Species. 1. *A. syriaca*. Lepanthium bidentate. Follicles muricate. 2. *phytolaccoides*. Lepanthium truncate, internal margin bidentate; petals pale green, lepanthium whitish, umbels both lateral and terminal.—New York to Carolina, and on the banks of the Ohio. Near Philadelphia on the rocky banks of Wishahikon creek. 3. *debilis*. 4. *parviflora*. 5. *nivea*. 6. *incarnata*. 7. *amoena*. Leaf oblong-oval, with an acute point, under side minutely pubescent, petiole very short; umbells terminal, erect; flowers purple; segments of the lepanthium ovate-oblong, entire, twice the length of the antheridium, central process flattened and gibbous, terminating in a subulate awn; margins of the antheridium triangularly produced.

8. *purpurascens.* 9. *viridiflora.* Described in the New York Medical Repository, Hexade II. p. 360. No. 18. by Mr. C. G. Rafinesque Schmaltz, since the year 1808, under the same name. 10. *variegata.* Stem simple, erect, leaves elliptic-ovate, petiolate, smooth, margin pubescent; pedicells pubescent; root horizontal.—Segments of the lepanthium roundish, longer than the antheridium, central processes flattened, falcate, point aristate, tube purplish. 11. *obtusifolia.* 12. *amplexicaulis.* Leaves glaucous, remarbably veined; flowers whitish. A low but elegant species.

13. *Periplocæfolia.* (*A. laurifolia,* Mich. *A. acuminata,* Pursh. *A. cordata?* Walt. fl. car. 105.) Leaves subsessile, somewhat distant, ovate-lanceolate, narrowing upwards, very acute, smooth on both sides, margin asperate; umbells mostly 2, naked, lateral; root an arrounded tuber, (almost similar to that of the spiked species of *Liatris.*)—Corolla greenish on the under side. Segments of the lepanthium oblong-linear, a little longer than its awn, which is simply subulate, and about twice the length of the antheridium. "Apocynum ('scandens' by mistake) *Floridanum,* Periplocæ foliis, longius ab invicem distantibus, floribus ochroleucis, in umbella positis." Pluk. amalth. fol. 18. t. 358. f. 2. Hab. From New Jersey to Florida, in the swamps of the sea coast.

14. *paupercula.* (*A. floridana,* Lamarck.) Segments of the lepanthium spreading, much longer than the antheridium, internally bidentate, awn simply subulate, tube as long as the antheridium. Leaves very long and remote. Pluk. amalth. 18. t. 359. f. 4? the leaves in this figure are, however, alternate. 15. *viridis.* Probably not an *Asclepias?* 16. *quadrifolia.* Lepanthium linear-oblong, nearly flat, internally bidentate, twice the length of the antheridium, awn very short. "Apocynum umbellatum album, latiore foliis tetraphyllon ex *Terra Mariana.*" Pluk. Mant. p. 46.

17. *cinerea.* Stem simple, marked with an alternating pubescent line; leaves smooth, very narrow and linear, margin revolute, umbells lateral, erect, very few flowered; flowers whitish, segments of the lepanthium truncate, inner margin conspicuously bidentate, nearly equal with the antheridium, central awn erect, very short.

A. cinerea. Walter. Flor. Carol.

A very slender, herbaceous species, with the habit of *A. verticillata.* About a foot high. Leaves few, 3 to 4 inches long, scarcely a line wide. Umbells only 4 or 5-

flowered? Petals oblong-oval, white, externally cinereous-green, near the points. Lepanthium white, *without tube!* perfectly sessile. Pollinium short, lobes even, angularly infracted, styles 2, long. Hab. From Carolina to Florida. Specimen collected by Dr. Baldwin, from whom I received it, under the name of *A. cinerea*.

†† *Leaves scattered, or verticillate.*

18. *verticillata*. Stem erect, often branching, marked with pubescent lines, leaves smooth, narrow linear, crowded, mostly verticillate; tube of the lepanthium conspicuous, segments very short, awns long and falcate. 19. *longifolia*. Flowers greenish.—In Carolina, Georgia, Illinois, and Louisiana. Nearly allied to *A. viridiflora* of Pursh, if not the same.† 20. **lanuginosa*. Plant very low, decumbent, and partly lanuginous; leaves ovate, scattered, umbell solitary, terminal. Obs. 4 to 6 inches high; root tuberous, flowers greenish. My specimen was very imperfect. Hab. About 30 miles below the confluence of White river with the Missouri, on dry and gravelly hills. It is the only species which I met with in the upper part of Louisiana. 21. *tuberosa*.

The United States already afford about half as many species of this genus as the rest of the world, thus far explored. The tropical parts of America, according to Persoon, produce only 5 species. At the Cape of Good Hope there are 9; 5 in India and Ceylon; 1 in Persia, besides *A. syriaca*, 1 in China, 2 in Arabia Felix, 1 in Dauria, and 1 in Siberia. The 2 European species appear either referrible to *Cynanchum* or to constitute a distinct genus (viz. *Vincetoxicum*, of Persoon.) *Asclepias*, as it formerly stood, and as it still in part remains, under the sanction of popular compilers, constitutes rather an order, than a particular genus. Several of the genera, however, which were included in *Asclepias*, *Cynanchum*, and *Periploca*, have been very judiciously separated by Robert Brown, Esq. who properly considers *Asclepias* as the type of a Natural Order, ASCLEPIADEÆ.†

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† This plant, according to R. Brown, is a species of his genus *Gomphocarpus*, if the mere absence of the corniculum or arista, usually arising out of the concave lobes of the lepanthium, can be considered of generic importance; the single denture or "auricle" as it was called by Linnæus in his description of *Asclepias fruticosa* (*Gomphocarpus fruticosus*, of R. Brown) terminating either side of the lobe, we have already shown to be common to several genuine species of Asclepias, (such as *A. syriaca*, *A. phytolaccoides*, &c. and remarkably in *A. cinerea*.) The armature of the follicle, its being smooth or muricated, is likewise an unimportant character, there being indubitable species of *Asclepias*, both with one and the other. There are also species of *Gonolobus* with costate, muricate, and smooth follicles.

It is nothing less than a duty to the public, which prompts me to these observations on the ingenious labours of a man so eminently indefatigable, so accurate, and so justly celebrated. It is also highly probable, that this very revision has already been made by Mr. R. Brown himself.

244. *ANANTHERIX.‡

Calix and Corolla 5-parted. Lepanthium simple, 5-parted, segments compressed, fistulous and impervious, incurved, unconnected with the antheridium. Arista or corniculum none. Stamina as in Asclepias. Lateral winged margins of the antheridium broad and membranaceous. Lobes of the pollinium even, minute, stipe terminal, very long. Follicles 2. Seeds comose.

Similar to *Asclepias* in habit. Stem erect, leaves opposite; flowers umbellate. Nearly allied to the genus *Calotropis* of R. Brown.

E. viridis. *Asclepias viridis?* Walter. Flor. Car. p. 107.

DESCRIPT. Root perennial. Stem simple, erect, (about 2 feet high.) Leaves oblong or oblong-obovate, mucronulate, sessile, rather thick and minutely pubescent on either side, (2 inches long, and about half an inch broad.) Umbells few-flowered, lateral, nearly sessile; pedicells pubescent. Calix 5-parted, persistent, divisions oblong-ovate. Corolla 5-parted, connivent? § Lepanthium sessile, 5-parted, some-

† I regret, that Mr. Brown's publications on this subject are not to be seen, that I know of, in the United States, so that I am obliged, rather than culpably omit any genera peculiar to North America, to propose the 2 following, without being able satisfactorily to ascertain how far they may accord with genera already published by Mr. R. Brown, except what appears in the late edition of the Hortus Kewensis, vol. ii.

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‡ From α, *without*, and ἀνθέριξ, *an awn;* the segments of the lepanthium being, amongst other peculiarities, destitute of awns.

§ Judging by the only specimen which I have of this plant, the corolla seems never to expand! or very imperfectly, hence Dr. Baldwyn, from whom I obtained it, called it *Asclepias connivens.*

what longer than the antheridium and arising separately from its base; segments compressed, connivent, incurved, fistulous, but impervious, internally marginated, margin double, membranaceous, coalescing at the summit, and there including a minute lamella. Antheridium 5-lobed, winged lateral margin of the lobes broad and membranaceous, membrane margined and continued to the summit, there forming a double sinuous plicature from the centre of which arises the usual cusps of the lobes; cusps concave, margins reflected. Lobes of the pollinium minute, alternating in the cells of the antheridium, stipes of the lobes straight, capillary and very long. Stigma discoid, concave, margin 5-toothed. Styles 2, minute. Follicles 2. Seeds comose?

Collected near St. Mary's in Florida, by Dr. Baldwyn.

245. *STYLANDRA.†

Calix 5-parted, minute. *Corolla* without tube, 5-parted, segments long, erect, and connivent. *Lepanthium* simple, 5-parted, segments saccate, and compressed, with operculoid, rigidly recurved points; tube reversed, styloid, very long, supporting the parts of fructification. *Stamina* as in Asclepias. *Pollinia* pendulous, even. *Follicles* 2, long and slender. *Seeds* comose?

Stem erect, leaves both opposite and scattered; umbells axillary, very few flowered.

S. pumila.

Asclepias pedicellata. Walter, Flor. Carol. p. 106. *A. moschata?* Bartram. Fls. odorous.

Descript. Root perennial. Stem simple, erect, minutely pubescent, slender, (about from 6 to 12 inches high.) Leaves opposite and alternate, sessile, linear, acute, minutely pubescent, and somewhat scabrous on the margin. Umbells solitary, axillary, 3 or 4-flowered, peduncle short; pedicells longer than the peduncle. Calix 5-parted, very minute, segments acute. Corolla 5-parted, laciniæ erect, connivent, oblong-ovate, yellowish-green, points deeper coloured. Lepanthium 5-parted, segments about one third the length of the corolla, sessile, saccate, compressed or carinate, reciprocally confluent at the base; point rigidly inflected, resembling a deflected lid, with a subulate point, and emarginate behind; sacculum empty; tube reversed, (compared with *Asclepias*, &c) appearing like a slender pentagonal column, supporting the external parts of fructification, its summit 5-toothed. Antheridium very short, wings crustaceous; cusps of the lobes inflected. Pollinia even, 5 pair; lobes nearly sessile, short, compressed, and clavate.

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† From στύλος, *a column*, and ανηρ, *a man*, (by analogy, the masculine organs of plants,) the antheridium being supported upon a conspicuous style or column.

HAB. From Carolina to Florida, in dry and sandy soil.

246. AMSONIA. *Walter.*

Calix 5-parted. *Corolla* funnelform, orifice closed. *Follicles* 2, erect. *Seed* terete, naked, and obliquely truncated. (*Stigma* annulate.)

Leaves alternate; flowers in fastigate or corymbose panicles, mostly blue.

SPECIES. 1. *A. latifolia.* 2. *salicifolia.* 3. *angustifolia.* A North American genus.

247. GELSEMIUM. *Jussieu.* (Carolina Jessamine.)

Calix 5-leaved, very small. *Corolla* funnelform, border spreading, 5-lobed, nearly equal. *Capsule* compressed and flat, bipartile, bilocular. *Seeds* flat, attached to the margins of the valves.

A twining evergreen shrub, not lactescent, leaves opposite; flowers in small axillary and terminal fascicles, yellow; calix subtended by imbricated gemmaceous bractes.

SPECIES. 1. *G. nitidum.* Flowers fragrant. Anthers oblong-sagittate; style short, bifid; stigmas linear-oblong, bilobed, pubescent. β. **inodorum.* Calix leaves obtuse; flowers inodorous. Near Savannah in Georgia.

A North American genus.

248. GENTIANA. *L.* (Gentian.)

Calix half 5-cleft, or half 5-parted. *Corolla* tubulous at the base, campanulate, border 4 or 5-cleft; divisions ciliate or entire, spreading, erect or connivent, sometimes furnished with intermediate plaits. *Stamina* 4 or 5, distinct or connate. *Capsule* 2-valved, 1-celled; receptacles 2, longitudinal.

Leaves opposite, entire, flowers axillary or terminal, solitary, fasciculate, or verticillate; (colour mostly blue, often intense.)—Seeds subelliptic compressed, surrounded with an alated margin.

SPECIES. 1. *G. crinita.* Seed subcylindric, brownish, hispid! Generally in open marshes. (Near the Falls of Schuylkill in the vicinity of Philadelphia.) 2. *Pneumonanthe.* 3. *Saponaria.* 4. *ochroleuca.* Stem smooth, and terete; leaves smooth; flowers terminal, segments of the corolla acute; interior plait confluent, with a single tooth.

5. *Catesbæi.* Stem terete, minutely pubescent and somewhat scabrous; leaves short, elliptic-ovate, acute, margin scabrous; flowers terminal, fasciculate; corolla 5-cleft, campanulate, somewhat ventricose, segments subacute, interior plaits lacerately toothed.—Nearly allied to *G. Saponaria,* and also to *G. linearis.* Flowers paleish blue, open; leaves closely sessile, arrounded at the base. Root perennial. Flowering time, September to December. HAB. in open grassy swamps in North and South Carolina. 8 to 10 inches high Leaves about an inch long, and three fourths of an inch wide.—*Gentiana Catesbæi?* Walter.

6. *alba.* Muhl. Catal. Flowers white. 7. *linearis.* 8. *amarelloides.* From New York to Kentucky, and in Louisiana. Flowers pale obscure blue. Root annual.

9. *acuta?* Annual: stem quadrangular, branched; leaves subamplexicaule, 3-nerved, ovate, acute; flowers mostly solitary, axillary and terminal, upon longish peduncles; calix nearly divided to the base, 2 of the segments smaller; corolla campanulate, 4 and 5-cleft, segments semi-ovate, acute, orifice ciliate. OBS. Stem about a foot high; peduncles often an inch long; calix 4-cleft, unequal, 2 of the segments oblong-ovate, often nearly twice the size of the others; corolla cylindric, campanulate, rarely expanding, greenish-purple; beard of each segment about 5 filaments; anthers unconnected; intermediate plaits none. HAB. In depressed situations, on the plains of the Missouri, near Fort Mandan. Flowering time August and September. It appears to be somewhat allied to *G. campestris,* but slender, and much smaller flowered, it may be *G. acuta* of Michaux.

10. *angustifolia.* Stem mostly simple, sometimes 2 or 3-flowered; leaves linear, spreading, smooth; corolla 5-cleft; segments ovate acute, interior plaits lacerate; capsule clavate, upon a very long stipe.—OBS. A species considerably allied to *G. pneumonanthe.* Perennial; stem 6 to 12 inches, slender; flower blue, often 2 inches long; stipe of the capsule near an inch and a half.

The genus *Gentiana,* consisting of near 60 species, is confined principally to the alpine regions of northern Europe, and East Asia, (Siberia, &c.) here they continue to occur to the very limits of perpetual snow; several of the Siberian species will no doubt be discovered in Lower Canada and Labrador. 2 species were discovered by Forster in New Zealand, and a species of doubtful genus is said to exist in the Azores.—All the species of this genus are bitter and tonic; but the root of *G. lutea* is that which is most esteemed in medicine.

249. HYDROLEA. *L.*

Calix 5-parted. *Corolla* rotate, or campanulate. *Filaments* of the anthers, cordate at the base; anthers cordate. *Style* long and divergent; *Stigmata* capitate-peltate. *Capsule* 2-celled, 2-valved.

Herbaceous; flowers bracteate; terminal or axillary, solitary, corymbose or paniculate; some of the species produce axillary spines.

Species. 1. *H. caroliniana.* Capsule not 4-valved.

A genus of six species, (sec. Persoon) indigenous to the tropical or warmer regions of America, with the exception of *H. Zeylanica* of India.

Obs. In *H. spinosa*, so nearly allied to *H. caroliniana*, according to Jussieu the flowers are sometimes 6-cleft, with 6 stamens, 3 styles, and a capsule of 3 cells.

250. DICHONDRA. *Forster.*

Calix 5-parted; segments spathulate. *Corolla* shortly campanulate, 5-parted. *Stigma* peltate-capitate. *Capsule* subcompressed, didymous, 2-celled, cells 1-seeded. *Seed* globose.

Small perennial creeping plants; nearly allied to *Evolvulus*. Leaves reniform, alternate; peduncles 1-flowered; flower small and cernuous.

Species. 1. *D. carolinensis*, Leaves reniform and emarginate; under side covered with a thin silky villous; upper side also pubescent, but greener than the under; calix villous externally. Obs. Peduncle 2 or 3 inches long, and 1 or 2 from the same axill; calix reticulately veined. Leaves sometimes suborbicular and entire.—Probably *D. repens.*

This genus, apparently consisting of but a single species, exists from South Carolina to the West India Islands, and continuing to Peru extends as far a New Zealand in the southern hemisphere. (Ord. Nat. Convolvulacei.)

251. EVOLVULUS. *L.*

Calix 5-parted. *Corolla* rotate-campanulate; lobes subemarginate. *Styles* 2, deeply bifid; segments capillary and divergent. *Stigma* simple. *Capsule* 2-celled, 4-valved, 2 to 4-seeded.

Stem creeping, procumbent, or erect. Leaves alternate entire; flowers pedunculate, small; peduncles solitary, bibracteate, capsule perfecting 1, 2, or 4 seeds.

SPECIES. 1. *E. nummularius.* On the banks of the Mississippi, near New Orleans. 2. *sericeus?* Stem diffuse and procumbent? Leaves remote, sessile, oblong-lanceolate, sublinear, acute at both extremities, under side, somewhat silky villous; peduncle 1-flowered, shorter than the leaf, bibracteate, bractes seated in the axill. OBS. Stem almost filiform, somewhat villous; leaves 5 to 10 lines long, 1 to 2 lines broad, peduncles 2 to 3 lines long; flower white, convolvulaceous, plaited, external margin of the plaits villous; segments of the calix ovate, acuminate; capsule 2-celled, 4-valved, 2-seeded. HAB. Around St. Mary's, in Florida, Dr. Baldwyn. *v. s.*

3. *argenteus,* PH. (*pilosus.*) Perennial; stems simple, erect, and low, many from the same root: the whole plant densely hairy and shining: leaves cuneate-oblong, acute, crowded; peduncles 1-flowered, subsessile; bibracteate, bractes sessile in the axill; segments of the calix linear.—OBS. Allied to *E. Commersoni.* Stems 4 to 6 inches high; leaves 6 to 8 lines long, 2 to 4 wide, extremely hairy as well as the stem; flowers solitary, appearing sessile, purple, edge of the plaits hairy, capsule 4-valved, often perfecting only a single seed.—HAB. On arid gravelly hills near the confluence of Rapid river and the Missouri; flowering in May. This genus, with the above exceptions, exists exclusively within the tropical regions of India, Australia, and America.

†† *Flowers pentapetalous, inferior.*

252. HEUCHERA. *L.* (Allum-root.)

Calix 5-cleft. *Petals* 5, small. *Capsule* birostrate, bilocular, many-seeded.

Leaves radical; flowers small, in a thyrsoid panicle.

SPECIES. 1. *H. americana.* 2. *villosa.* On the mountains of North Carolina, Virginia, and Tennessee. 3. *caulescens,* PH.

A North American genus, with the exception of *H. caulescens* discovered also in Kamschatka by the late professor Pallas.

UMBELLATÆ.

††† *Flowers pentapetalous, superior, 2-seeded.*

253. ERYNGIUM. *L.* (Eryngo. Sea-Holly.)

Flowers capitate. *Involucrum* many-leaved. Proper *calix* 5-parted, superior, persistent. *Corolla* of 5 petals. *Receptacle* foliaceous, segments acute or cuspidate. *Fruit* bipartile.

Herbaceous; leaves entire, digitate or pinnatifid, often spiny, almost after the manner of *Carduus*. Inflorescence irregular, mostly dichotomal. Capitulum imbricated, producing bracteal or minute leaves.

Species. 1. *E. virginianum.* 2. *virgatum.* Capitulum whitish. 3. *fœtidum.* 4. *aquaticum.* Stem rather low; leaves sword-shaped, distantly margined with setose spines, setæ frequently by pairs; involucrum shorter than the capitulum; segments entire or tricuspidate. Flowers greenish-white. Pluk. Phyt. t. 175, f. 4. 5. * *gracile.* Without spines; stem slender, dichotomous: leaves with very few serratures, radical oblong-ovate, upon long peduncles, cauline digitate or trifid, subsessile, segments linear-oblong; capitula solitary, lateral and terminal, upon long filiform peduncles; involucrum none, or similar to the bractes; bractes cuspidate, entire.—Obs. Stem very slender, scarcely a foot high, grooved; radical leaves often with 4 serratures; stem leaves digitate or ternately divided, central segments often bidentate, lateral ones entire or unidentate, linear-oblong, and attenuated downwards; segments of the uppermost leaves entire; capitulum blue, roundish, and very small, (scarcely bigger than an ordinary grain of shot.) Hab. In West Florida. Dr. Baldwyn.

Of this numerous genus there are 8 other species in Mexico and South America, but Eryngium exists chiefly in the south of Europe, Barbary, Syria, Persia, and the Levant. Many of the species are submaritime, others exist in inland depressions, and a considerable number grow on arid wastes.

254. PANAX. *L.* (Gin-seng.)

Flowers polygamous; umbell simple.—*Calix* 5-toothed. *Corolla* of 5 petals. *Berry* inferior,

subcordate, 2, sometimes 3-seeded. *Calix* in the male flower entire.

Herbaceous or arborescent. Stem of the herbaceous species simple, verticillately terminating in 3 leaves, with a solitary, central, pedunculate umbell; leaves digitate; umbell involucrate; flowers frequently producing 3 styles and 3 seeds.

Species. 1. *P. trifolium.* Dioicous. Pluk. Amalth. t. 435. f. 7. the male plant; referred through mistake to *Dentaria* (Nasturtium.) 2. *quinquefolium.* Gin-seng. Indigenous also to Tartary.

Of this genus there are 5 other species; viz. 2 in the West Indies, which become considerable trees, with comose summits, an herbaceous species in New Holland, of doubtful genus, 1 also which is arborescent in New Zealand, and a shrubby species in India, said to be diuretic.

255. HYDROCOTYLE. *L.* (Marsh Pennywort.)

***Umbell* simple.—*Calix* none. *Petals* entire, spreading. *Styles* short; stigmas capitate. *Fruit* suborbicular or reniform, laterally† compressed. *Seed* tricostate, and flat, dorsal rib sometimes obsolete; commissure flat, linear, and immarginate. *Involucrum* various.**

Umbells axillary, sessile or pedunculate, many or few flowered, frequently proliferous; flowers bracteate, bractes often resembling an involucrum. Plant herbaceous, mostly creeping; leaves simple, peltate or reniform.

Species. 1. *H. americana.* Fruit suborbicular. 2. *vulgaris.* 3. *umbellata.* Fruit reniform.

Of this genus there are 12 other species in South America, chiefly in Peru, besides *H. umbellata* also indigenous to Chili, 2 in Europe, 1 in India, 2 in the Isle of France,

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† The direction in which the seeds of umbelliferous plants are compressed, is doubtless in most instances of more generic importance than the simple existence of pressure. I have therefore for the sake of distinction, divided the species of compression into *lateral* and *dorsal.* By *lateral* compression is meant, that the seed is elevated on the back and compressed on the sides. By *dorsal* compression, is intended that form of appression familiar in the seeds of the Parsnip (*Pastinaca sativa,*) the back of the seed being flat and the sides dilated, in fact, a form almost precisely opposite to the preceding.

1 in New Zealand, and 7 at the Cape of Good Hope; (according to Persoon.)

256. *~~GLYCERIA~~.† Chondrocarpus

Umbell simple.—*Calix* none. *Petals* entire, ovate, acute, incurved. *Styles* very short, subulate; stigmas obsolete. *Fruit* reniform, laterally compressed, flat and truncate. *Seed* quinquecostate, covered with an indurated bark: commissure linear, immarginate and flat. *Involucrum* 2-leaved.

Herbaceous and repent; leaves entire, cordate or reniform, sheathing at the base, often pubescent; peduncles axillary; umbell 3 to 6-flowered, frequently proliferous, trifid; flowers without bractes, subimbricated in a lateral row. Episperm thick and indurated, almost nuciform.

SPECIES. 1. *G. repanda.* Leaves rounded-cordate, angularly repand, and truncate at the base; petioles, peduncles, and younger leaves pilose; umbell pedunculate, mostly 3-flowered.

Hydrocotyle repanda. PERSOON.

OBS. Petiole often very long (4 to 6 inches,) on the flagellate stolons scarcely half an inch, pubescence at length deciduous. Flowers white. Stamina shorter than the petals, anthers brown. Grooves of the fruit marked with interrupted, secondary, (or internal) lines. HAB. On the dry margins of ponds and rivulets in South Carolina and Georgia.

To this genus appertains *Hydrocotyle triflora* of Peru, *H. asiatica* of India, and probably *H. Sibthorpioides*, and *H. Ficarioides* of the Isle of France.

257. *CRANTZIA.‡

Umbell simple.—*Calix* none. *Petals* entire, roundish, and obtuse. *Styles* minute, stigmas obtuse. *Fruit* subglobose; commissure excavated, nearly orbicular. *Seeds* unequal in size,

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† From γλυκερὸς, *sweet*, the whole plant possessing a saccharine taste.

‡ In memory of Professor Crantz the celebrated author of a monograph on the umbelliferous plants. The genus previously so named by Vahl having been referred to *Tricera.*

each with 3 marginated dorsal ribs, and 4 obtuse-angled grooves.—*Involucrum* about 5-leaved.

A small succulent, repent plant; peduncles axillary, umbell many-flowered; leaves sessile, cuneate-linear, with 5 transverse nerves (or dissepiments.) Nearly allied to *Azorella*, but of a very different habit.

C. lineata. *Hydrocotyle lineata.* Mich. 1. p. 162. *H. sinensis?* L.

Descript. Stem creeping, terete, filiform. Leaves 2 or 3 lines wide, and about 2 inches long, succulent, smooth, erect, cuneate-linear, obtuse and sessile, each marked with 5, rarely 6, transverse lines, approximating upwards, longitudinal vessels obsolete. Umbells simple, solitary, axillary, 8 to 12 flowered, peduncles a little longer than the leaves. Involucrum 5, rarely 6-leaved. Flowers pedicellate, uniform; calix marginal or obsolete; petals roundish-oval, obtuse, rosaceous. Stamens much shorter than the petals; anthers roundish. Styles very short, recurved, each with an elevated roundish base, forming almost half the germ, which thus appears as if cut round, about the middle. Fruit nearly spherical; commissure (or interior surface of junction) suborbicular, and depressed, with a thick suberose, connivent margin. Seeds convex, unequal, one of them often abortive? internally concave, having 3 margined dorsal ribs or elevated lines, exclusive of the commissure; intervals smooth.

Hab. From New Jersey to Florida, in salt marshes? (Abundant near Egg-harbour, New Jersey, in a salt-marsh with *Limnetis juncea*, &c.) Flowering time, from May to September.

To this genus probably appertains *Hydrocotyle linifolia*, and *H. virgata*, which are certainly distinct from the present species, considered, however, the same with *H. sinensis* by the editor of Rees' Cyclopedia: see *Hydrocotyle*.

258. SANICULA. *L.* (Sanicle.)

***Umbell* nearly simple, capitate.—*Calix* 5-parted. *Petals* and stamina inflected. *Fruit* muricated, with uncinate setæ. *Flowers* of the disk numerous, abortive.**

Imperfectly umbelliferous; radii or branches 3 or 4 unequal, lateral ones ternately subdivided, subbibracteate; partial umbells crowded, hemispherical, male flowers numerous, pedunculate, unarmed; hermaphrodite 1 to 4, central, sessile; involucell multipartite. Styles filiform, simple. Leaves digitate. (Character taken from *S. marilandica;* in *S. Europæa,* the central flowers are masculine.)

SPECIES. 1. *S. marylandica.* 2. *canadensis.* Both species grow in the vicinity of Philadelphia.

Of this genus there are but 2 other species at present enumerated by Persoon; viz. *S. europæa,* and *S. crithmifolia,* of Russia.

259. DAUCUS. *L.* (Carrot.)

Fruit oblong, partly solid, ribs ciliated with hispid hairs or barbed bristles. _Involucrum_ pinnatifid.

Umbell many-rayed, while in flower flat, in fruit partly contracted into the form of a funnel. Petals cordately inflected; 5 primary ridges of the seed scarcely prominent, nearly smooth; 4 secondary muricate.

SPECIES. 1. *D. carota.* Commonly naturalized. 2. *pusillus.* Probably only a variety of *D. carota.*

The genus Daucus, now containing 15 or 16 species, exists exclusively in Barbary and the south of Europe, excepting *D. copticus* of Egypt.

260. AMMI. *L.* (Bishop's-weed.)

Flowers radiated, all hermaphrodite. _Petals_ cordately inflected. "Fruit oblong, corticate, angular, ridges 5, obtuse, intervals convex." SPRENGEL.† _Involucrum_ pinnatifid.

Somewhat allied to *Daucus* in habit; umbell loose, subdivaricate.

SPECIES. 1. *A.? capillaceum.* ⊙ About 1 foot high. Leaves almost capillary divided, smooth, bipinnatifid, pinnulæ trifid or unequally bifid; peduncle of the umbell 4 to 8 inches long, angularly grooved. Umbell spreading, unequal, 4, 6, or 8-rayed. Involucrum about 3-leaved, leaves simple or trifid. Umbellet about 4, 6, or 8-flowered, central peduncles as well as pedicells being the shortest. Involucell consisting mostly of one trifid leaf. Calix minute, 5-toothed. Petals oval, entire, with the points inflected, white. Style very minute, with the base elevated. Fruit partly globose and solid, somewhat ovate, or pointed above, smooth. Seed roundish-ovate, membranaceously corticate, very convex, with a thick margin, and three primary, whitish, and somewhat acute ridges, intervals convex.—The 2 other primary ridges of the 5 are confluent in the suberose margin, but can still be distinguished from it.

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† Plantarum umbelliferarum denuo disponendarum Prodromus, auctore Curtio Sprengel, &c. 1813.

In open swamps from New York to Georgia. Plentiful in New Jersey, near to Philadelphia. The habit of this plant is that of *Aethusa*.

This small genus of about 6 species, is with the present exception, confined to the south of Europe, Barbary and the Levant.

261. CONIUM. *L.* (Hemlock.)

Calix entire. *Petals* unequal, cordately-inflected. *Fruit* ovate, gibbous. *Seeds* 5-ribbed, ribs at first crenate; intervals flat. *Involucell* on one side, mostly 3-leaved.

Involucrum 3 to 5-leaved, leaves complicately pseudopinnate.

SPECIES. 1. *C. maculatum.* Fruit ovate, smooth and gibbous; stem spotted. β. **crispatulum.* Leaves crisp, ultimate segments subsetaceously acuminated.—Rather rare; chiefly on inhabited sites, and therefore probably introduced, but altered by climate? A well known poisonous plant at present used in medicine.

Of this genus there are not probably more than 2 genuine species, and those indigenous to Europe.

262. SELINUM. *L.* (Marsh Parsley.)

"*Fruit* roundish, emarginate at the base, margin alated, dorsal ridges 3, obsolete, intervals somewhat convex. *Involucrum* universal and partial many-leaved." SPRENGEL.

SPECIES. *S. canadense. Ferula canadensis? L.*

An European genus, excepting the above species, which requires further examination.

263. IMPERATORIA. *L.* (Masterwort.)

"Fruit roundish-oval, a little compressed, emarginate at the base, ridges (on each seed) 3 dorsal, obtuse, intervals flatly convex, margin alated. *Involucrum* universal none." SPRENGEL.

Leaves ternate; (involucellum in *I. ostruthium* 1 or 2-leaved, minute.)

SPECIES. 1. *I. lucida*. SP. *Angelica lucida*. L. *Selinum canadense?* Mich.

The plant quite smooth, and scarcely inferior in size to *Heracleum Sphondylium*. Leaves primarily 3-parted, and decompound, the segments confluent in 5's, of which the more complete are oblong-ovate, acute, mucronately and deeply serrate; sheaths remarkably large and ventricose, towards the summit of the stem nothing is produced but these large and membranaceous sheaths, and no other kind of involucrum; the flowering umbell consisting of many rays is so dense as to appear nearly hemispherical; partial involucrum minute and setaceous; flowers white and regular; with the seed I am unacquainted; advanced germ truncated, roundish, somewhat gibbous and compressed, slightly striated. Whether this be Sprengel's plant or not, I have not the means of ascertaining, being unacquainted with the mature fruit, in the absence of which the definition becomes an insolvable riddle.

A genus now, according to Sprengel, including 6 species, chiefly separated from Angelica and Selinum.

264. HERACLEUM. *L.* (Cow-Parsnip.)

Calix nearly entire. *Petals* emarginately inflected, often of 2 forms. *Fruit* elliptic, dorsally compressed, flat, apex emarginate, margin membranaceous. *Seed* with 3 striæ, " intervals maculate half way down,—commissure flat, bimaculate." SPRENGEL.—*Involucrum* none.

Umbell and umbellet many-rayed; involucell 3 to 7-leaved, outer leaves longer; central flowers sometimes abortive, radial ones in *H. angustifolium* not differently formed..

SPECIES.* 1. *H. lanatum*. A genuine species, and scarcely distinct from *H. Sphondylium*. 2. **Sphondylium*. On the banks of the river Missouri. Inner part of the young stems eaten by the savages of Columbia river.

Chiefly an European genus, of about 16 species.

265. PEUCEDANUM. *L.* (Sulphur-wort.)

Calix minute, 5-toothed. *Petals* oblong, incurved, equal. *Fruit* oval, dorsally and flatly

compressed, surrounded with an alated margin, striated, striæ 5 on each seed; intervals elevated, lined; commissure flat.

Involucrum few-leaved, very short, rarely 1 to 5-leaved; involucell many-leaved, shorter; flowers mostly yellow.

Species. 1. *P.* **ternatum.* Leaves all ternate, upon very long common petioles; partial leaves entire, long, linear, acute, and attenuated below; involucrum nearly wanting; involucell very short, 5 or 6-leaved; fruit oblong-elliptic.

Descript. Perennial. Every where smooth. Stem 3 feet high, striate and slender. Leaves very few, 5 or 6; peduncle of the lowest near 2 feet long! dividing above into 3 linear leaves, either petiolated or filiformly attenuated downwards, from 4 to 6 or 8 inches long, perfectly entire, and scarcely 3 lines wide. Umbells 1 or 2, terminal; involucrum none, or 1 or 2 minute leaves, radii elongated, 6 to 9. Segments of the involucell subulate, 2 or 3 lines long; pedicells filiform more than an inch. Flowers ——? Calix marginal, entire, or none. Styles short, reflected; fungous base elevated. Mature seed oblong-elliptic, large as that of a parsnip, flatly compressed, but convexly incurved, surrounded with a thick, alated fungous white margin, continued internally entirely over the commissure. Seed thin, longitudinally scored with 5 equidistant paler lines, and 5 dark striated intervals.

Hab. On the bushy margins of swamps, in the pine-forests of North and South Carolina. I have not seen the flower.

Of this genus there are in Europe about 4 species, 2 at the Cape of Good Hope, 1 in Japan, 1 in the Canary islands, 1 in Crete, and a heteromorphous species in New Zealand.

266. FERULA. *L.*

***Calix* entire, or minute. *Petals* oblong, subequal. *Fruit* suboval, dorsally compressed, flat and marginated. *Seeds* marked with 3 dorsal lines; "intervals and commissure striate." Sp.—Universal involucrum caducous; involucell many-leaved.**

Stems for the most part very tall; umbell and umbellet globose, many-rayed, many lateral umbells growing from one terminal peduncle; leaves complicately pseudo-pinnate.

Species. 1. *F. villosa.* An active poison. 2. **fœniculacea.* Stemless and pubescent; leaves radical, supradecompound, subbiternately † pseudo-pinnate, primary divisions decussating at the base, segments rather short, narrow-linear and subacute, ultimate laciniæ trifid; involucrum none; involucell dimidiate, membranaceous, 5 to 7 lobed; flowers yellow.

Descript. Root perennial, fusiform. Leaves partly resembling those of the Carrot (Daucus Carota) but more numerously divided, and with shorter segments. Scape about 1 foot high, grooved and smooth, bearing a single umbell. External rays about 5, 10 to 15 lines long, with several internal ones which are abortive. Involucell on one side, consisting of a single membranaceous lobed leaf nearly equal with the flowering umbellet; peduncles short. Calix minute, 5-toothed. Petals yellow, equal, oval, involute. Styles long and persistent; stigmas capitate. Fruit compressed, suborbiculate-elliptic, surrounded with an alated margin, on either side slenderly striate; striæ 5, 3 more conspicuous than the rest; commissure flat, naked, the marginal membrane of the seed, not extending over the centre. The seeds somewhat resemble those of *Pastinaca sativa* and are nearly as large.

Allied to *Pastinaca.* Hab. On the high plains of the Missouri, commencing about the confluence of the river Jauke. Flowering in April and May. This species possesses somewhat the scent of Fennel.

3. *nudicaule.* Nearly stemless, smooth and somewhat glaucous; leaves supradecompound, subbiternately pseudo-pinnate, pimary divisions decussating at the base, segments confluent, narrow-linear and acute; ultimate laciniæ irregularly subtrifid; involucrum none; involucell dimidiate, membranaceous, 7 to 9-parted; flowers white.

Smyrnium nudicaule. Pursh, Flor. Am. 1. p. 196. *v. s.* under this name in Herb. Lambert.

Obs. Nearly allied to the preceding, but producing a minute stem or elevated caudex; in this also the segments of the involucell are more numerous, acuminated, and divided down to the base; the seeds are elliptic-ovate, surrounded with a narrower margin; the petals white, oblong and involute at the point.—**Hab.** With the above; also on the plains of the Columbia river. *M. Lewis.* Flowering in April. Both these species exude a resinous aromatic gum on incision, and also spontaneously in minute quantities. I have been induced to refer these 2 plants to this genus rather than any other with which I am acquainted, though they differ considerably in habit, but agree with the *Ferula pumila* of Pallas, indigenous to Siberia.

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† This word, which will be hereafter used, is analogous to pinnate of others; though, strictly speaking, there is not perhaps a single instance of this kind of leaf in the whole order of the Umbellatæ. A true pinnate leaf, has the partial leaves or leaflets *articulated* to the common midrib, from whence they are spontaneously soluble at the period of defoliation; such are the leaves of *Fraxinus*, *Robinia*, *Amorpha*, *Bignonia*, &c. On the other hand, the pseudo-pinnate leaves are always? more or less *confluent at their extremities.*

267. PASTINACA. *L.* (Parsnip.)

Fruit **oval, apex emarginate, flatly (and dorsally) compressed, marginated, ridges (on each seed) 5, obsolete, intervals striate, commissure also bistriate. *Involucrum* universal and partial, none. SPRENGEL.**

Flowers yellow; leaves pinnate. *P. sativa* sometimes produces involucells.

Species. *1. *P. sativa.* β. *arvensis.* In Pennsylvania.

A genus of about 5 species, indigenous to Europe and the Levant.

268. THAPSIA. *L.*

"*Fruit* sublinear, ecostate; (seed) 4-winged, wings 2 dorsal and 2 marginal. *Involucrum* none." SPRENGEL.

Petals entire incurved; flowers yellow or white; leaves twice or thrice pseudo-pinnate.

Species. 1. *T.* **glomerata*. Nearly stemless; leaves smooth and flat, cruciately subbipinnatifid, segments linear-oblong, obtuse, ultimate lobes confluent, subtrifid; umbells polygamous, shorter than the leaves; involucrum none; involucell dimidiate; flowers numerous, subsessile.

Selinum acaule, Pursh, 2. p. 732, in Suppl. *v. s.* in Herb. Lambert, under this name.

Descript. Root tuberous, perennial. Plant smooth, very low, almost stemless and depressed, sending up several stalks from the same root; stem simple, or subdivided from the base, subdecumbent, only 4 to 6 inches high. Leaves partly opposite, subbiternately divided, lobes short and obtuse, decussating at the base; petiole as long as the lamina, and nearly the length of the peduncle. Involucrum none. Radii 4 to 6, very short; (so as to render the umbell in appearance simple or conglomerate.) Involucell 5 to 7 parted, on one side, segments lanceolate. Central flowers of the umbellet pedunculate, small and masculine; fertile flowers white, equal, subsessile, scarcely longer than the involucell. Petals roundish oval, apex inflected. Calix minute, 5-toothed. Styles filiform, persistent. Fruit large, subelliptic and compressed, with 7 or 8 conspicuously alated ridges. Perfect seed sublinear, with 4 secondary wings, imperfect with 3. Alæ undulated, intervals flat, commissure naked, (the margin not extending to the centre, so as to cover the seed) marked with 3 nearly central longitudinal lines. Axis inseparable from the fruit!—Hab. On the open plains of the Missouri, commencing 40 miles below the confluence of White river. Flowering time May and June.

A genus of 6 or 7 species, indigenous to the south of Europe and Northern Africa.

269. LIGUSTICUM. *L.* (Lovage.)

Fruit oblong, corticate. *Seed* "with 5 acute ridges and 4 grooves."† Jussieu. Sprengel. "*Involucrum* universal and partial, many-leaved." Sp.

Leaves decompounded, for the most part ternately divided. Calix often 5-toothed?

Species. 1. *L. scoticum*. In Canada.

Almost exclusively an European genus.

270. ANGELICA. *L.*

"*Fruit* elliptic, compressed, somewhat solid, and corticate, ridges 3, dorsal acute, intervals grooved, margin alated. *Involucrum* universal none." Sprengel.

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† Many authors describe the seed, as having 5 grooves, which is impossible in the nature of umbelliferous seeds, as they are all referrible to a structure of 5 *primary* ridges, viz. 1 dorsal, 2 lateral, and 2 marginal; when inlaid with *secondary* ridges the grooves are either obliterated, or produced comparatively by the depression or obliteration of the primary elevations; as these never exceed 4, so the intervening grooves, must ever be 3 or 4, or if the grooves were double, their number would be 6 or 8, but never 5.

Umbell large, many-rayed, spreading; umbellet dense, subhemispheric; involucell about 8-leaved. Leaves large, often biternately pseudo-pinnate. (Seed with longitudinal alated margins, extending internally over the whole surface of the commissure in *A. triquinata.*) Calix 5-toothed; petals inflected.

Species. 1. *A. triquinata.* Obs. Leaves sharply and incisely serrate, very smooth, lateral leaflets oblong-ovate. Involucrum none. Peduncle, pedicell, and immature seed, minutely pubescent. Involucell 7 or 8-leaved, leaves almost filiform and subulate, longer on one side. Umbellet unequal, dense; flowers white. Petals oval, obcordately-inflected; inflected point long and subulate. Styles long and deflected. Seeds roundish-elliptic, dorsally compressed; margin alated, ancipital; dorsal or approximating ridges 3, acutely margined, almost rectilinear.—Hab. From Canada to Carolina. Common around Philadelphia. Certainly a genuine species, and admirably according with the improved generic character of the ingenious Sprengel.

2. *atropurpurea.* 3. *lucida.*

Of this genus there are about 8 species enumerated, which, excepting the above, are all indigenous to Europe.

271. SIUM. *L.* (Water-Parsnep.)

Calix obsolete. *Petals* cordately inflected. *Fruit* subovate, laterally compressed, and striate.

Involucre and involucell many-leaved; leaves mostly pseudo-pinnate, and serrated on the margin. Styles rather long, persistent and deflected; stigmas capitate. Fruit small; oblong or oval, laterally or obversely compressed, giving a narrow oblong commissure. Seed ovate, gibbously convex, equally scored with 5 elevated ridges, and 4 intervening grooves. (Character from *Sium latifolium*, as it appears in America.) Nearly allied to *Carum*, which produces an involucrum of a single leaf.

Species. 1. *S. latifolium.* (Calix obsolete, and not 5-toothed in the American plant.)

2. *lineare.* Stem deeply grooved; leaves pseudo-pinnate, 2 to 4 pair; uppermost ternate, terminal leaflet petiolate; leaflets long, sublanceolate-linear, margin subciliately-serrate, serratures nearly equal, small and sometimes rather distant, umbells terminal, (involucre and involucell many-leaved.)—Obs. Stem various in height, generally tall; in the smaller plants, the serratures

(which are always mucronate) are nearly equal and elegantly approximate. Leaflets from 2 to 7 or 8 inches long; not more than 2 to 4 lines wide, attenuated at both extremities. Involucre of few or many leaves (6 to 12) according to the magnitude of the plant, segments acuminated, entire or laciniate. Flowers white; petals cordately inflected. Calix obsolete. Styles long, persistent and deflected, having capitate stigmas (after the manner of the genus?) Fruit small, oval, laterally compressed, so as to produce a narrow commissure. Seed partly ovate, with 5 equal ridges and 4 intermediate grooves.

This plant is unquestionably the *S. longifolium* of Pursh, Flor. Am. 1. p. 194. and also *S. tenuifolium* of Muhlenberg's Catalogue, as I have examined a specimen which he had so named.

Of this genus there are 9 genuine species in Europe (1 in Greece with yellow flowers); 7 at the Cape of Good Hope; 2 in Japan, and 1 in China, 1 or 2 in North Africa. Few of them probably accord with the European and North American part of the genus.

272. SISON. *L.* (Hone-wort.)

"*Fruit* ovate, solid, (seed) dorsally tricostate, intervals convex, contracted at the sides (laterally compressed); commissure excavated. *Involucrum* few-leaved or none." SPRENGEL.

Involucrum 3 or 4 leaved or wanting; umbellets slender, few flowered, involucell about 4-leaved. Leaves ternate or pseudo-pinnate, often with the ultimate segments trifid.

SPECIES. 1. *S. pusillum.* *Ligusticum pusillum.* Persoon's Synopsis, 1. p. 315. *Æthusa divaricata?* SP. Probably a *Bunium?* 2. *trifoliatum.* 3. *marginatum.* *Sium rigidius?*

273. *ERIGENIA.†

Calix none. *Corolla* uniform. *Petals* obovate, spreading, entire. *Styles* persistent, subulate, very long. *Fruit* oval, somewhat laterally com-

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† From ’ηριγένεια, a name of *Aurora*, the harbinger of day or of the spring, as derived from ἔαρ, or ηϱ, the spring, and γίγνομαι, *I exist*, or *come forth*. This plant is so called in allusion to its early appearance in the spring; being the first conspicuous flowering plant in the United States, blooming often amidst the snow, about the 12th or 15th of March.

pressed. *Seed* gibbously convex, marked with 3 striæ; commissure narrow, immarginate, flat. *Involucrum* none.

Umbell imperfect; umbellulæ about 4, 3 to 5-flowered; involucell unequal, 3 to 5 or 6-parted; leaf solitary, radical, biternate, segments multifid; scapes furnishing a consimilar involucrate leaf; flowers stellate; root a globular tuber.

E. bulbosa.

Sison bulbosum, Mich. 1. p. 169. *Hydrocotyle composita.* Pursh, Flor. Am. 1. p. 190. *H. ambigua*, of the same, 2. p. 732. *H. bipinnata.* Muhlenberg's Catalogue.

Obs. Caudex ascendant, about an inch high. Leaf solitary, emitting 2 and sometimes 3 scapes from its sheath; lamina biternately divided, partitions subternate; segments subrhomboidal, cleft, ultimate lobes trifid, obtuse, with minute points. Scapes round, 4 to 5 inches high, terminating in an irregular umbell of 3 or 4 rays, subtended at the base by a sessile ternate leaf subdivided similarly to that of the root. Leaves of the involucell entire, simple, linear-oblong. Flowers white, stellately expanding. Petals obovate-oblong, or attenuated downwards so as to appear unguiculate. Calix obsolete, marginal. Stamina, filaments erect, exserted longer than the petals, anthers oval, deep brown. Styles subulate, persistent, twice the length of the germ; stigmas obsolete. Germ turbinate, laterally compressed, truncated above. Seed gibbously convex, marked with 3 curved lines, (my specimens were not sufficiently advanced to determine the ultimate character of the seed) 2 lateral and 1 dorsal, the margin of the commissure being inconspicuous and forming nearly a right line.

Hab. In shady alluvial soils, subject to inundation. Near Lancaster, Pennsylvania; near Pittsburgh; on the Ohio, Missouri, Tennessee, &c.

Of this genus there are probably 2 species, but the second has not been indicated; Mr. Pursh's *Hydrocotyle ambigua* I have now before me, which is unquestionably the plant described by Michaux under *Sison*, and which he himself has also given as *H. composita.* A second species? of which I have merely an accurate drawing made by C. W. Short, M.D. from a living specimen found on the banks of Kentucky river the 15th of March, has to all appearance leaves which are simply ternate, with the divisions 3-parted, the lobes subrhomboidal with dentures which are a little cleft. And although the specimen appears to have been very complete, and collected also by a botanist, I dare not for the present announce it as a disdinct species. This genus appears to be somewhat allied to Sison, but certainly distinct. To *Hydrocotyle* it can have no pretensions.

274. ŒNANTHE. *L.* (Water Dropwort, Filipendula.)

"*Fruit* ovate-oblong, corticate, solid, apex denticulate, crowned with the persistent style, ridges (or striæ) (on each seed) 3 or 5 obtuse. Universal involucrum scarcely any." SPRENGEL.

Umbell formed of few rays; umbellets subglobose, with the flowers often sessile. Involucell many-leaved. Poisonous plants, mostly aquatic, having roots with pendulous tubers, fistulous striated stems, and pseudo-pinnated leaves, commonly twice compounded near the root, often laciniated, segments mostly entire on the margin.

SPECIES. 1. *Œ. carolinensis.* + 2. *Phellandrium.* Lam. Decandolle. *Phellandrium aquaticum.* L. HAB. On the Rocky Mountains? PH. 3. *rigida.* Leaves all? pseudo-pinnate; leaflets sessile, oblong-lanceolate, entire or incisely toothed; involucrum none; styles peltately dilated at the base, extremely short; fruit subelliptic. OBS. Stem erect, rigid, terete, even, striate, and fistulous. Leaflets 4 or 5 pair, all sessile, circumscribed by a whitish and somewhat scabrous margin. Involucell about 8-leaved, subulate. Calix 5-toothed, acute. Petals cordately inflected; many of the central sessile flowers sterile. Styles persistent, peltately dilated at the base, scarcely a line in length, divaricate, obtuse or rather truncate, and distinctly grooved on the upper side. Fruit elliptic-ovate, dorsally compressed, flat, (as in *Pastinaca sativa.*) Seeds rather large, with a suberose prominent subalated margin continued inwards so as to cover the seed, slenderly striated on the back; striæ 5.

Sium rigidius. Willd, sp. pl. 1. p. 1433. Pursh, Flor. Am. 1. p. 194. Probably *Sison marginatum.* Mich. Fl. Am. 1. p. 168.

3. **ambigua.* Stem even, with few leaves; leaves all pseudo-pinnate, leaflets three to five pair; narrow-linear, long and entire, all sessile and acute, under side glaucous; involucrum 2 or 3-leaved; umbells terminal, nearly solitary. OBS. Root perennial, tuberous? Stem tall, smooth, striate, fistulous and cylindric. Leaves distant, with small sheaths, only about 4 or 5 on the whole

stem; leaflets 5 or 6 inches long, and about 2 lines wide, thickish, perfectly entire, or now and then, but rarely, bifid, circumscribed by a white and somewhat scabrous margin. Umbell rather small, with elongated rays. Umbellets roundish, with sessile abortive flowers, involucell many-leaved, filiform-subulate. Calix distinct, 5-toothed. Petals cordately-inflected. Styles very short, peltately dilated at the base. Fruit smooth, flat, and subelliptic.—Nearly allied to the preceding species, and probably to *Œ. peucedanifolia* of Europe. Hab. On the marshy banks of the Delaware, near Philadelphia. My friend Z. Collins, Esq. informs me, that this plant attains the height of 6 to 10 feet in the marshes of New Jersey, and that the lower leaves are extremely long and furnished with numerous leaflets, uniformly narrow like those of the Delaware plant.—These 2 species do not well accord with the genus, and appear allied somewhat to *Peucedanum*, by the flatness of the seeds. I am satisfied that the celebrated Sprengel could not possibly have referred our *Œ. rigidius* to his genus *Sium;* one of us must be in an error as to the identity of the plant.

Of this noxious genus there are about 12 species in Europe, 1 in Barbary, 1 in tropical America (*Huanaca acaulis*, Cav.) 6 at the Cape of Good Hope. According to Persoon the tuberous roots of *Œ. peucedanifolia* are eaten by children in some parts of France.

275. ÆTHUSA. *L.* (Fool's-parsley.)

"*Fruit* ovate, somewhat solid, corticate, ridges (on each seed) 5, acute and turgid, intervals acute-angular, commissure flat, striate. *Involucrum* 1-sided or wanting." Sprengel.

Leaves ternately divided, slender and compoundly dissected.

Species. 1. *Æ. divaricata.* Sp. Obs. Annual; stem erect and slender; leaves biternate, segments narrow and linear; umbells terminal without either partial or general involucrum; umbellets 3 to 5-flowered, flowers white, fruit subglobose, somewhat hispid. *v. s.* in the herbarium of Z. Collins, Esq. but not sufficiently advanced to ascertain the ultimate character of the seed. Is it not rather a *Bunium?* (*Ammi divaricatum*. Persoon. *Daucus*. Walter.) In Carolina. 2. *leptophylla?* Sp. Leaves biternately dissected, margin of the acute segments entire; umbell trifid, sessile, umbellets naked, few-flowered. *Pimpinella leptophylla?* Persoon, 1. p. 324. Hab. In the vicinity of New Orleans, from whence it was accidentally imported to Philadelphia, in a box of earth, with other plants, by Mr. R. E. Griffiths who favoured me with living specimens.

Descript. Root slender, fusiform, annual. Stem nearly simple, or dividing into 2 or 3 branches towards the base or the middle, smooth, even and slender, about a foot high, and nearly floriferous from the base. Leaves rather distant, petiolate, having small membranaceous abrupt sheaths, larger leaves subtriternately divided, ultimate segments bifid and trifid, very smooth, linear and acute. Umbell entirely sessile, arising from the sheath of the leaf on the opposite side of the stem, bifid or trifid without any vestige of a proper general or partial involucrum. Umbellet 10, 12 to 15-flowered, more or less; pedicells short. Calix none. Petals subovate, acute, erect, equal and entire, with the points a little incurved, externally rosaceous, within whitish. Styles not visible, stigmas in all stages like so many subcapitate sessile points. Stamina shorter than the corolla, anthers purplish. Fruit roundish-ovate, corticate, and laterally subcompressed; commissure flat and striate, oblong-elliptic. Seed greenish-grey, scarcely larger than that of Mignionette, gibbously convex, scored with 5 converging, angular and turgid ridges; intervals acute-angular, and striate. Sensible properties and structure of the seed not very dissimilar to that of *Cicuta maculata*, the primary ridges are, however, less obtuse and interlaid with striæ not with tubercular granulations.

276. CICUTA. *L.* (Water-Hemlock, Water-Cowbane.)

Fruit corticate, roundish, and laterally compressed; commissure oblong-elliptic, flat. *Seed* gibbously convex, scored with 5 converging obtuse ridges, and 4 intermediate tuberculate grooves.

General involucrum wanting, or at most of 1 or 2 leaves; partial involucrum 5 or 6-leaved. Flowers regular. Calix obsolete, 5-toothed. Petals cordately-inflected. Styles persistent, spreading; stigmas subcapitate. Leaves biternate, serrated. Poisonous plants.

Species. 1. *C. maculata.* Obs. Lower leaves ternate, with the partitions unequally 5-leaved; upper ones simply biternate, floral leaves ternate, leaflets lanceolate, almost perpendicularly serrate, serratures mucronate, lateral leaflets oblique at the base. Umbells axillary and terminal. Involucrum of 1 or 2 minute leaves, but mostly wanting. Involucell 5 and sometimes 6-leaved, acuminated. Umbellets numerous, many-flowered. Calix acute. Seeds agreeably aromatic, with paler coloured ridges, and a suberose episperm, intervals tuberculate. HAB. Abundant around Philadelphia, in the marshes of the Delaware.

2. *bulbifera.* Leaves various; in bulbiferous stems biternate and very thin, in bulbiferous and umbelliferous stems simply ternate, leaflets thicker, upon shorter peduncles, linear sublanceolate, lacerately serrate; umbell terminal, solitary, lateral branchlets bulbiferous. OBS. Stem low, smooth, simple or trichotomous. Leaves in infertile bulbiferous stems, more compound and slender, with very long petioles, ultimate divisions sublanceolate-linear, with very few serratures, in fertile stems the leaves have very short petioles, petioles of the leaflets more than an inch long. Primary umbell often opposite a leaf, the rest solitary, terminal; lateral branchlets short and bulbiferous, bulbs ovate axillary, covered by the dilated sheaths of the leaves, often approximating so as to appear oppositely imbricated, but where more distant, distinctly alternate. General involucrum of the umbell 1 or 2-leaved, partial about 5-leaved. HAB. On the banks of the Delaware near Philadelphia; but rare. A genuine species, the fruit scarcely distinguishable from that of *C. maculata.*

Of this genus there are but 3 species, the 3d. *C. virosa,* is indigenous to Europe.

277. MYRRHIS. *Morison.* (Chervil.)

"*Fruit* sublinear, solid and angular, ridges a little acute, apex attenuated or crowned with the style. Universal involucrum none." SPRENGEL.

SPECIES. 1. *M. canadensis.* (*Sison canadense.* L.) Leaves ternate, leaflets ovate-acute, incisely and doubly serrate, peduncles by pairs; umbells small and unequal.

2. *bifida.* Muhl. SPR.

A genus of 16 species, according to Sprengel, chiefly indigenous to Europe.

278. * URASPERMUM.† MYRRHIS. *Michaux.*

Fruit sublinear, solid, acutely angular, caudate, and without striæ; angles subsulcate, his-

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† So called from the seed being caudate.

pid; commissure sulcate; receptacular axis semibifid; style subulate, persistent, terminating the fruit. Universal involucrum none.

Umbell compound, with 5 or more rays. General involucrum wanting. Partial involucrum 5-leaved, entire; umbellets many-flowered; masculine florets often double the number of those which are fertile. Calix obsolete. Petals oblong, emarginately inflected. Leaves biternate, somewhat pseudo-tripinnate, margin incisely-toothed; young plants canescently pilose, at length nearly smooth. Sweet and aromatic, odor anisate; seed tasteless.

SPECIES. 1. U. *Claytoni.* *Scandix Claytoni*, Mich. OBS. Root perennial. Stems about a foot high, striated, always more or les pubescent, but at first of a hoary whiteness. Leaves only about 2 on each stem; ternate, with the subdivisions from 3 to 5-leaved; terminal leaflets rhomboidal, acute, lateral ones more irregular and oblong, sometimes subpinnatifidly lobed, but generally incisely toothed, dentures mostly obtuse with a small point. Umbells axillary and terminal, rays about 5. Involucrum wanting, or of 1 or 2 small leaves. Umbellets small, exterior hermaphrodite flowers about 5, males about 10, all pedunculate, peduncles of the male-flowers capillary; involucell 5-leaved, linear-lanceolate, acuminate, soon after flowering deflected. Styles filiform, as long as the germ, erect and divaricate, with inconspicuous stigmas. Germ distinctly villous towards the base. No vestige of a calix. Fruit linear-lanceolate, black and shining, subulated, but without rostrum. Seed caudate, (an inch in length, including the cauda, which is about 3 lines long) acutely quadrangular, without either ribs or striæ; intervals flat and even, cuticle minutely punctate, cauda, and more sparingly the angles of the seed aculeately hispid.—HAB. Near Philadelphia, on the shady banks of the Schuylkill. The whole plant, excepting the seed which is perfectly tasteless, possesses nearly the same sweet and aromatic odor as *Myrrhis odorata*, to which it bears some resemblance.—If *Sison canadense* is to be considered a genuine *Myrrhis*, and *Scandix procumbens* and *S. cerefolium* as examples of *Chærophyllum*, I could not for a moment hesitate to separate from both these genera, the *Myrrhis Claytoni* of Michaux, not however without a suspicion of its affinity to *M. odorata*.

279. CHÆROPHYLLUM. *L.*

"*Fruit* oblong-linear, terete, ecostate, glabrous, commissure sulcate." SPRENGEL.

Universal involucrum none. Leaves pseudo-tripinnate, or bipinnate, ultimate segments divaricate; variously and incisely lobed or toothed.

SPECIES. 1. *C. procumbens*. OBS. Young stems, and particularly the sheaths of the leaves hairy. Umbells opposite the leaves, naked, 3-rayed. Umbellets about 5-flowered; involucell short, about 5-leaved, ovate, erect. Flowers all fertile; petals oblong-oval, entire, scarcely inflected. Styles very minute. Seeds linear-oblong, 3 or 4 lines long, brownish, even, very smooth and distinctly lined; striæ 5, intervals angularly elevated. HAB. Near Philadelphia, on the banks of the Schuylkill. Leaves somewhat resembling *Daucus Carota*.

A genus now including scarcely more than 5 or 6 species, indigenous to Europe, America, and Barbary.

280. SESELI. *L.* (Meadow-Saxifrage.)

"*Fruit* ovate-lanceolate, solid, (seed) 5-ribbed, ridges somewhat obtuse, intervals partly grooved. Universal involucrum none; partial many-leaved." SPRENGEL.

Partial involucrum 3 to 5-leaved, small; umbells subglobose, often rather rigid. Leaves simply or doubly pseudo-pinnate, segments linear.

SPECIES. 1. *S. triternatum.* PH. + 2. *divaricatum.* PH. Stem short, procumbent, branched; leaves subopposite, shining, short and bipinnatifid, segments toothed, terminal ones obtusely tridentate, petiole decurrent in the alated midrib; umbells upon long peduncles, hemispherical, dichotomal and terminal; involucrum none, involucell about 5-leaved, lanceolate, unilateral: flowers yellow.—OBS. Root perennial. Proper stem procumbent, divided from the base, scarcely 4 inches long, angularly grooved. Leaves all, except the radical ones, opposite, 3 or 4 inches long, partly with an ovate outline, flat and shining, secondary divisions about 3 pair, pinnatifid, segments 2 to 4 lines long, obtuse, and toothed, each terminating in 3 nearly equal dentures; teeth with minute points; petiole confluent in the alated midrib. Peduncles naked, rigid, 4 or 5 inches long, nearly of equal thickness with the stem. Umbell naked, roundish, 18 to 20-rayed; rays thick and unequal, 5 to 8 lines long. Umbellets crowded, more or less, 20-flowered, of which the half are abortive; involucell 5-leaved, lanceolate-acuminate, membranaceous, unilateral, a little shorter than the flowering umbell. Calix 5-toothed, acute, distinct. Petals oval acuminate, involute, yellow. Styles filiform, divaricate. Fruit oblong-ovate, angularly striate; about the size of Caraway seeds. HAB. On the arid and denudated plains of the Missouri, commencing about 30 miles below the confluence of White river. Flowering in May.—*S. lucidum.* T. N. in Fraser's Catalogue, 1813. It appears to be allied to *Smyrnium*, but of a very different habit, and the fruit accords with this genus.

281. SMYRNIUM. *L.* (Alexanders.)

Fruit **roundish and solid, somewhat laterally compressed, angularly ribbed. *Seed* (blackish), gibbously convex, marked with 3 angular elevations.**

Flowers yellow, in the centre of the umbell abortive. Calix obsolete; petals incurved, acuminate. Involucre always and involucell mostly wanting. Stem leaves simple pseudo-ternate or biternate.

SPECIES. 1. S. *integerrimum.* OBS. Leaflets oval and entire, with a point. Radii of the umbell divaricate, filiform. Involucell 3-leaved or 3-toothed, very small and often deciduous. Calix minutely 5-toothed; petals oblong, acuminate, involute. Styles divaricate, longer than the germ, stigmas subcapitate. Fruit large, about the size of a lentil, suborbicular, laterally compressed, blackish; seed gibbous, angular elevations inconspicuous. HAB. Chiefly on the principal range of the Alleghany mountains; plentiful in the mountains of Pennsylvania. Flowering in May and June.

2. *S. trifoliatum* Leaves crenate, radical subcordate, uppermost 3-parted; flowers yellow. OBS. Involucell 3-leaved, unilateral. Calix 5-toothed. Petals oval, acuminate, involute. Fruit small, blackish, somewhat laterally compressed; seeds gibbous marked with 3 immarginate angular elevations, exclusive of the inner margins; intervals substriate, commissure flat.—*Thapsia trifoliata,* LINN. *Cnidium trifoliatum,* CUSSON. *Smyrnium cordatum,* WALTER. All these synonyms as well as that of Michaux, excepting Walter's, as far as they regard the fruit, evidently apply to some other species, probably to *S. atropurpureum,* or *S. aureum.*

A genus indigenous to Europe, Northern Africa and North America.

282. * THASPIUM.†

Fruit subelliptic. *Seed* convex with 5 alated ridges, alæ subequal; intervals grooved. *Involucre* none. *Involucell* about 3-leaved, unilateral?

Flowers mostly yellow, many of them infertile. Styles divaricate. Calix 5-toothed; petals involute, acuminate. Leaves pseudo-ternate or biternate, radical ones sometimes entire, margin serrated or toothed, rarely entire. Each of the umbells usually coming out opposite a leaf, in some species terminal.

§ I. *Umbells opposite the leaves; stems nearly simple.*

SPECIES. 1. T. *aureum.* Leaflets ovate-lanceolate, acute, serrate, lateral divisions of the upper leaves subsessile; involucell 3-leaved, unilateral; calix 5-toothed, all the ridges of the seed winged. *Smyrnium aureum.* PH. 2. *atropurpureum.* Leaves serrate, radical often subcordate, uppermost ternate, middle leaflet conspicuously petiolate, leaflets ovate-acute; flowers dark purple. OBS. Radical leaves mostly entire, upon long peduncles; involucell 3-leaved, unilateral, often wanting. Calix 5-toothed, obvious. Petals oblong acuminate, involute, at first greenish. Styles filiform, divaricate, long as the fruit. Fruit small elliptic, with 10 whitish alated ridges.—Leaves often elegantly maculated with angular paler coloured blotches. *Smyrnium atropurpureum.* PH. HAB. Not uncommon in the vicinity of Philadelphia.

§ II. *Umbells terminal; stem dichotomous.*

3. T. *barbinode.* *Ligusticum barbinode,* Mich. Fl. Amer. p. 167. Lower leaves subtriternate, upper biternate; leaflets cuneate-ovate, acute or acuminate, unequally and incisely serrate, entire towards the base; umbells dichotomal and terminal; involucell subulate, unilateral, 3-leaved; fruit elliptic, 7 of the ridges alternately broader.—OBS. Root perennial. Stem 3 feet high, dichotomous, angular, and grooved, smooth, excepting a minute pubescence at the nodes, common in this and other genera. Leaves smooth, floral ones subopposite, all upon longish petioles, a little scabrous and whitish on the margin, serratures deep,

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† From the isle of *Thaspia,* which gave name to the *Thapsia* of the ancients, in allusion to its affinity with that genus. It is the *Cnidium* of Cusson, a name now more properly employed for another genus.

large, unequal, and acute, commencing usually a little below the middle of the leaflet (leaflets 10 to 15 lines long). Peduncles of the umbells rather short. Involucrum none. Umbellets about 20-flowered, more than half of them abortive. Calix distinct, 5-toothed. Petals deep yellow, acuminate, obliquely involute. Styles persistent, filiform, erect, about twice the length of the petals, with distinct but small stigmas. Fruit nearly as large as that of the parsnip, elliptic in the outline. Seeds elliptic, convex, one of them with 2 broader alated lateral ridges, and the other with one dorsal alated ridge, margins alated, connivent, intervening elevations much lower. Seeds aromatic, and highly camphorated. HAB. On the shady banks of the Schuylkill near Philadelphia. 4. *acuminatum.* Rees' Cyclopedia, under *Smyrnium.*—In Pennsylvania? 5. *actæifolium* (*Ligusticum actæifolium*, Mich. Flor. Am. 1. p. 166.) "involucell setaceous; fruit oblong-oval, with 10 partly alated ribs; leaflets oval, equally toothed." Many of the flowers sterile. Involucrum none. +.

†††† *Flowers incomplete.*

283. ATRIPLEX. *L.* (Orache.)

Flowers polygamous.—*Calix* 5-parted. *Corolla* none. *Style* bifid. *Feminine* flower; calix 2-parted, compressed. *Seed* vertical.

Flowers glomerate, paniculate; bisexual; masculine and feminine flowers intermixed, or on separate plants; leaves alternate, rarely subopposite. Mostly annual; rarely shrubby.

SPECIES. 1. A. **canescens.* (*Calligonum canescens*, Pursh, Flor. Am. Sept. 2. p. 370.) Dioicous; pulverulently furfuraceous and canescent; stem shrubby, diffuse; leaves linear-oblong, entire, obtuse, attenuated towards the base, younger leaves acute.—OBS. Stem much branched, and diffuse, about 3 or 4 feet high, with round grey branches. Leaves alternate, 15 to 20 lines long, about 3 wide, sometimes cuneate-oblong, obtuse and now and then emarginate, very entire, covered with the white branny scales common to this and the preceding genus. Flowers dioicous, with 4, 5, and 6 stamens, conglomerated towards the ends of the branches; male clusters (at least the lower ones) pedunculate. Calix of the female flowers 2-parted, becoming indurated, acute, with 4 unequal cristated or dentated angles. Style 1, deeply bifid, exserted.

Nearly allied to *A. portulacoides*. Hab. On the denudated saline hills of the Missouri; commencing about 15 miles below the confluence of White river, and continuing to the mountains. Flowering in May.

2. *hortensis*. 3. *patula*. Both of these introduced, now naturalized. 4. *laciniata*.

5. * *argentea*. Stem herbaceous, erect; leaves deltoid, subcordate, somewhat obtuse, entire, on both sides canescently furfuraceous and shining; fruit subpedunculate, oval, compressed, and obtuse, margin acutely toothed. Obs. About a foot high and considerably branched. Leaves a little attenuated on the petiole, uppermost subsessile. Fruit axillary, nearly naked on the back. Allied to *A. sibirica?* Hab. On sterile and saline places near the Missouri. ⊙

6. * *arenaria*. Stem herbaceous, spreading; leaves very entire, oblong-ovate, subsessile, on the under side argenteous, upper ones acute or acuminate; flowers axillary, glomerate; fruiting calix muricate, dentate, retuse.—Obs. Stem reddish, angular, about a foot high, much branched and spreading, annual. Lowermost leaves often cuneate-oval and very obtuse; uppermost ovate-lanceolate, acutely acuminate, whitish and furfuraceous on both sides, but more particularly on the under; about 10 or 12 lines long, and 5 wide. Male flowers mostly running out into a short glomerate spike at the ends of the branches; female flowers crowded, axillary. Fruiting calix cuneate, or retuse, with a 3 or 4-toothed double margin, disk, or back of the fruit, on either side furnished with 2 short dentated crests or angles not more than half its length. Hab. On the sandy sea-coast of New Jersey. Flowering in August. This plant has long been known to my friend Z. Collins, Esq. as a distinct species.

Chiefly an European genus, the above excepted, with 1 species at the Cape of Good Hope, 1 in Barbary, 1 in Siberia, 2 in Tartary, from whence *A. hortensis* is said to have originated, and 1 in Bengal.

284. CHENOPODIUM. *L.* (Goosefoot.)

Calix **5-parted, with 5 angles.** ***Corolla*** **none.** ***Style*** **bifid, (rarely trifid.)** ***Seed*** **1, lenticular, horizontal, covered by the closing calix.**

Leaves alternate, often angular in the outline. Flowers glomerate, paniculate.

Species. 1. C. *Bonus Henricus.* I have, as yet, neither seen this plant indigenous nor naturalized, in the United States. 2. *murale.* 3. *album.* 4. *hybridum.* Common around Philadelphia. 5. *Botrys.* Indigenous on the banks of the Missouri and Mississippi. Common in Pennsylvania in gardens and wastes. 6. *ambrosioides.* Much more common around Philadelphia than the following. 7. *anthelminticum.* 8. **subspicatum.* Stem herbaceous, subquadrangular; lower leaves hastate-ovate, bidentate, acute, upper leaves sublanceolate; glomeruli approximate, subspicate, naked. Obs. Leaves and stem whitish and somewhat furfuraceous; racemes glomerate, simple, terminal; leaves with a single indention on either side, near the base, which is cuneate. Hab. In saline soils around the Mandan village, Missouri.

Chiefly an European genus, occupying wastes and gardens. Of the above species enumerated, as now common in the United States, Nos. 5, 6, 7, and 8, only, are indigenous.

285. SALSOLA. *L.* (Salt-wort.)

Calix 5-parted, with a capsular base. **Corolla** none. **Style** bifid. **Seed** 1, horizontal, cochleate, covered by the connivent calix. (Fruiting calix in many species surrounded by a membranaceous dorsal margin.)

Stem shrubby or herbaceous; leaves alternate, very rarely opposite, terete or flat, often succulent, sometimes spinescent; flowers terminal or axillary, frequently tribracteate.

Species. 1. S. *Kali.* Herbaceous, decumbent; leaves subulate, canaliculate, spinose; calix marginated, axillary. β. *caroliniana,* leaves dilated, shorter, terete, nerveless, spinose; stem smooth or pubescent; calix with a broader margin. Obs. Stem diffusely decumbent; flowers tribracteate, solitary, axillary; calix unequal, in fruit cartilaginous, orbicularly depressed and connivent, with subulate points, segments unequal, 2 much smaller, surrounded with a membranaceous alated dorsal margin, reddish and elegantly veined. Seed cochleate, or resembling a small univalve shell, covered with a membranaceous episperm; perisperm none. Hab. On the strand of Egg-Harbour, New Jersey. Certainly, according to the suggestions of Mr. Pursh, a mere variety of *S. Kali.*

2. *salsa.* Obs. About a foot high, stem at first nearly simple and erect, with longish succulent linear unarm-

ed and somewhat glaucous leaves; flowering branches at length commencing from the base to the summit, simple and alternate, appearing distichal; floral leaves about one third the length of the others and dilated at the base; axills 3-flowered, lateral flowers tribracteate; bractes very minute, paleaceous. Segments of the calix very unequal, succulent, diaphanous, and dorsally gibbous; inner margin connivent over the seed. Stamina 3, rarely, if ever, 5. Style 1, scarcely visible, minutely bifid. Seed brown and shining, perfectly even; roundish-reniform. NOTE. Sometimes when the simple stem is much elongated, the flowering plant becomes decumbent as described by Michaux. The seed much more resembles that of *Chenopodium* than *Salsola*. HAB. In the salt-marshes of New Jersey and New York, never on the sandy strand with *S. Kali.* This plant is probably the *Chenopodium maritimum* of Pursh. After a scrupulous comparison also of this plant, now before me, with the *Salsola depressa* of Pursh, I find them to be the same species; so that the range of this plant is from the Atlantic sea-coast, probably, to the sources of the Missouri, in arid and saline tracts.

With the exception of a few species in Siberia, and Barbary, 2 at the Cape of Good Hope, and 2 in India, this extensive genus of near 40 species is confined to the sea-coasts of the south of Europe. Several of the species are burnt to obtain Soda.

286. KOCHIA. *Roth.*

Calix monophyllous, campanulate, 5-cleft: in fruit producing a dorsal margin in the form of 5 petals; orifice closed with 5 triangular dentures. *Corolla* none. *Style* short; stigmas 2 or 3, long. *Capsule* 1-celled, 1 or 2-seeded? *Seed* incurved.

Habit similar to *Chenopodium.*

SPECIES. 1. K. *dentata.* 2. * *dioica.* Annual: stem low, branches axillary; leaves sessile, very entire, ovate-lanceolate, acute, somewhat succulent and glaucous; flowers (male) terminal, conglomerate; calix subglobose-campanulate, dorsal dentures small and obtuse, internal ones membranaceous, acute.—OBS. Stem 6 to 12 inches high, smooth and angular; branches simple, axillary. Lower leaves oblong-lanceolate, upper ones ovate-lanceolate, acute, younger leaves and flowers at first scattered with white and furfuraceous scales. Male flowers naked, terminal. Calix inflated, whitish, and membranaceous, somewhat globose-campanulate, *entire* to the orifice; external dentures greenish, small and obtuse; internal longer and acute, at first incumbent upon the stamens, afterwards nearly erect, deltoid and acute. **Stamina** 5, exserted, partly combined at the base, filaments capillary; anthers at first fulvous, at length, after dehiscence, bifid at either extremity. **Hab.** In sterile and saline places, near the Missouri; abundant near Fort Mandan, &c. Flowering in May. I have never seen any but male plants, and am unacquainted with the seed. It resembles a small *Atriplex* or *Chenopodium*, in its leaves, and terminal conglomerated flowers.

To this genus have been referred by its founder some of the species of *Salsola*.

287. ULMUS. *L.* (Elm.)

Calix campanulate, 4 or 5-cleft. *Corolla* none. *Samara* † compressed, encompassed by a membranaceous alated border. (*Stamina* sometimes 4 and also 8.)

Trees or rarely shrubs; leaves retrorsely asperate, often oblique at the base; flowers fasciculate, conglomerate, appearing before the leaves.

Species. 1. U. *americana*. 2. *nemoralis*. 3. *fulva*. (Slippery Elm.) 4. *alata*. Leaves much smaller than those of any other American species. **Hab.** In Tennessee on the banks of the French Broad river, and in Carolina and Virginia.

Of this genus there are 3 species in Europe, 1 in Siberia, 1 in China, and a species of doubtful genus in India.

288. PLANERA. *Gmelin.*

Polygamous.—*Calix* membranaceous, subcampanulate, 4 or 5-cleft. *Corolla* none. *Stigmas* 2, oblong, glandulous, divergently recurved. *Capsule* (nut?) subglobose, membranaceous, 1-celled, not opening, smooth or squamulose (not winged) 1-seeded.

Masculine flowers intermixed with the others; stamina 4 to 6. Leaves and flowers resembling those of *Ulmus*, to which genus it is very nearly allied. Michaux.

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† The Elm affords a genuine example of this species of fruit.

Species. 1. P. *aquatica*. Principally confined to the western side of the Alleghany mountains.

Of this genus there is another species on the borders of the Caspian sea.

289. CELTIS. *L.* (Nettle-tree, Hackberry.)

Polygamous.—*Calix* 5-parted. *Corolla* none. *Styles* thickish, divaricate. *Drupe* 1-seeded. *Masculine* flowers (inferior) calix 6-parted, with 6 stamina.

Trees or rarely shrubs; leaves mostly oblique; flowers subsolitary or racemose. Filaments of the bark elastic?

Species. 1. C. *occidentalis*. Calix of the male flower 5-parted; stamina 5. The bark of this species is often remarkably rimose. β. *integrifolia*. Leaves entire; bark of the tree not rimose.—On the banks of the Mississippi, near to St. Louis. 2. *crassifolia*. Is not this a mere variety of *C. occidentalis*, in which the young plants have always leaves that are scabrous on either side. 3. *tenuifolia*. *C. pumila*, Pursh 1. p. 200? A low bush, in the mountains of Virginia, flowering at the height of 2 feet. Leaves nearly as broad as long, now and then without serratures, often cordate-ovate, very little acuminated and almost perfectly smooth on both sides. Berries solitary, brown and glaucous.

Of this small genus there is 1 species indigenous to Barbary and the south of Europe, 1 to the Levant, 1 to the East Indies, 1 to China, and 2 to the West Indies.

Order III.—TRIGYNIA.

290. VIBURNUM. *L.*

***Calix* small, 5-parted, superior. *Corolla* small, campanulate, 5-cleft. *Berry* or *drupe* 1-seeded.**

Shrubs with opposite leaves, naked at the base; flowers terminal cymose.

Species. 1. V. *prunifolium*. 2. *pyrifolium*. 3. *Lentago*. 4. *nudum*. 5. *obovatum*. 6. *cassinoides*. 7. *lævigatum*. 8. *nitidum*. 9. *dentatum*. 10 *pubescens*. 11. *Lantanoides*. 12. *acerifolium*. 13. *molle*. 14. *Oxycoccus*. 15. *edule*.

Of this genus there are in Europe 4 species, 1 in the Canary islands, 2 in tropical America, 1 in Siberia, 1 in Imeretia and 8 in Japan.

291. SAMBUCUS. *L.* (Elder.)

Calix small, 5-cleft. *Corolla* somewhat urceolate, 5-lobed. *Berry* roundish, 3-seeded.

Shrubs or small trees; leaves opposite, simply or doubly pseudopinnate, in a few species bistipulate, in others biglandular at the base, glands stipitate; flowers cymose.

SPECIES. 1. S. *canadensis.* Leaves on either side not unfrequently more or less minutely and hirsutely pubescent. Fruit not eaten, nor agreeable. The first leaves of young plants, after the cotyledones, are simple and cordate. 2. *pubescens.*

Of this genus, besides the above, there are 3 species in Europe, and 1 in Japan where the *S. nigra* is also indigenous, of this species there occurs a variety with remarkably laciniated leaves.

292. RHUS. *L.* (Sumach.)

Calix 5-parted. *Petals* 5. *Berry* small, with 1 nuciform seed.

Small trees or shrubs; leaves pinnate or ternate, in 2 species of doubtful genus, entire; flowers paniculate or in terminal compounded and dense racemes; often *polygamous.* Several of the North American species are poisonous to the touch.

SPECIES. 1. R. *typhinum.* 2. *glabrum.* 3. *viridiflorum.* 4. *pumilum.* Extremely venomous. 5. *Vernix.* also Indigenous to Japan. 6. *Copallinum.* 7. *Toxicodendron.* 8. *radicans.* Certainly distinct from No. 7. Both these species are venomous. 9. *aromaticum.* Dioicous; leaves ternate; this is the only species to be met with in Upper Lousiana, the berries of which, as in some of the other species, afford an agreeable and wholesome acid.

Of this genus there are 3 species in tropical America, 2 in the southern extremity of Europe, and 1, *R. Cotinus,* extending into Austria, Helvetia, and Siberia; 2 species in Java, one of them common also to China, another common to China and Japan, 1 in the island of New Caledonia; 2 in Northern Africa, and no less than 20 at the Cape of Good Hope.

293. STAPHYLEA. *L.*

Calix 5-parted, coloured. *Petals* 5, inserted upon the margin of a pentanglar glandulous disk. *Capsules* 2 or 3; inflated, growing together. *Nuts* about 2, globose with a cicatrice.

Small trees, with opposite stipulated leaves; which are ternate or unequally pinnated, each leaflet furnished with a stipule; flowers racemose, terminal.

Species. 1. S. *trifolia*. Obs. Filaments of the stamina pubescent. Germ 3-celled, cells many-seeded, but by abortion perfecting only 2 or 3 seeds.

Of this genus there is 1 species in the West Indies, 1 in the Andes of Peru, and 1 in Europe.

294. TURNERA. *L.*

Calix 5-cleft, funnelform, usually bibracteate at the base. *Petals* 5, unguiculate, inserted upon the calix. *Stigmata* many-cleft. *Capsule* 1-celled, 3-valved.

Suffruticose or herbaceous; leaves alternate, petiole in some species biglandulous; flowers axillary or seated upon the petiole, solitary; in 2 species the flowers are racemose.

Species. 1. T. *cistoides*. Near Savannah in Georgia? Pursh.

This genus, except the above species, is exclusively confined to tropical America.

295. SAROTHRA. *Lamarck.*

Calix 5-parted, connivent. *Petals* 5, linear-oblong. *Capsule* oblong, acute, coloured, 1-celled, 3-valved, margin of the valves seminiferous.

A small plant with the inflorescence of an *Hypericum*, much branched, branches erect and subtrichotomous; leaves scarcely visible, linear; flowers solitary, axillary and terminal, sessile.—Peculiar to North America.

Species. 1. S. *Hypericoides*. (*Hypericum Sarothra*. Mich. and Pursh, 2. p. 378.) The stamina vary from 5 to 6. As this plant is closely allied to *Hypericum*, and scarcely in any respect like a *Gentian*, I see no reason why it should be called *S. gentianoides*, a comparison which must tend to mislead, as its affinity, if any, to that genus, is entirely fanciful.

ORDER IV.—TETRAGYNIA.

296. PARNASSIA. *L.* (Grass of Parnassus.)

Calix 5-parted, persistent. *Petals* 5. *Lepanthia* (nectarys) 5, inserted upon the claws of the petals, ciliate, filaments with globose tips. *Capsule* 2-celled, 4-valved. *Receptacle* in the middle of each valve. *Seeds* membranaceously margined.

Leaves radical, cordate, nerved; scape unifoliate about the middle, 1-flowered; flowers white, with pellucid veins.

SPECIES. 1. P. *palustris*. 2. *caroliniana*. 3. *asarifolia*.

A North American genus with the exception of *P. palustris*, which is also common to Europe.

ORDER V.—PENTAGYNIA.

297. ARALIA. *L.*

Umbelliferous.—*Calix* 5-toothed, superior. *Petals* 5. *Berry* 5-celled, 5-seeded.—*Umbells* involucellate.

Arborescent, shrubby, or herbaceous; leaves entire, lobed, digitate, or repeatedly pseudo-compounded.

SPECIES. 1. A. *nudicaulis*. 2. *racemosa*. (called Spikenard.) 3. *hispida*. 4. *spinosa*. (Angelica-tree.).

The remaining species of this genus are indigenous to the tropical parts of America; there are also 3 species in Japan and 1 in China.

298. STATICE. *L.*

Calix 1-leaved, entire, plaited, scariose. *Petals* 5. *Seed* 1, superior.

Subgenera.—ARMERIA. Scape simple, flowers capitate, common calix many-leaved.

SPECIES. 1. S. *Armeria.* (Thrift, Sea Gilliflower.)

LIMONIUM. Flowers scattered, upon a paniculated or spiked scape, or leafy stem.

SPECIES. 2. *caroliniana.* (American Sea Lavender.) Apparently a mere variety of *S. Limonium.* The leaf is obovate-lanceolate, mucronate below the apex, entire and veinless; the scape alternately and numerously branched, ramuli corymbose, teeth of the calix acute, flowers of an elegant blue, each subtended by 2 very unequal bractes.

This numerous genus of near 50 species is principally indigenous to the sea-coasts of the south of Europe, extending into Barbary, Egypt, Siberia and Lesser Asia, there are also 5 species at the Cape of Good Hope, in the southern hemisphere.

299. LINUM. *L.* (Flax.)

Calix 5-parted, persistent. *Petals* 5, unguiculate. *Capsule* superior, 10-valved, 10-celled. *Seed* solitary. (Filaments of the stamina united at the base.)

Herbaceous and suffruticose; leaves mostly alternate; flowers solitary, axillary, or, rarely coming out opposite the leaves, at the summit corymbose, racemose or dispersed.

SPECIES. 1. L. *usitatissimum.* Scarcely naturalized. 2. *perenne.* (*L. Lewisii,* Pursh.) On cultivating both in the same garden, I have not been able to detect any specific difference betwixt the European and American plant. That of the Missouri was, however, smaller, and the seeds of a paler colour. HAB. Commencing about Fort Mandan, and becoming more abundant towards the mountains; growing on the declivities of water courses. 3. *virginicum.* Throughout the Atlantic states, and in Upper Louisiana. 4. *rigidum.* OBS. Stem rigid, angular, grooved; leaves subsetaceous, short, and erect; margin of the calix leaves glandulously ciliate; petals cuneate-oblong; seed pale brown.—HAB. Around Fort Mandan. About 6 inches high, flowers pale yellow. 5. *striatum.* Carolina.

The remainder of this extensive genus, with the exception of 3 species in tropical America, 1 in New Zealand, and 3 at the Cape of Good Hope, is indigenous to Europe, principally to the south, extending also into Barbary and the Levant.

300. SIBBALDIA. *L.*

Calix 10-cleft, alternate segments narrower. *Petals* 5. *Styles* proceeding laterally from the germ, (as in *Rosa*, *Potentilla*, &c.) *Seeds* about 5.

Herbaceous alpine plants, with ternately divided leaves, leaflets simple or subdivided; flowers axillary and terminally aggregated, styles sometimes 10.

Species. 1. *S. erecta.* *β. parviflora.* Obs. Biennial; pilose. Stem erect, 4 to 6 inches high, numerously branched towards the summit. Leaves collected in a rosette, on the stem alternate and sessile, radical somewhat twice trifid, segments subdivided, cauline leaves subbipinnatifid, laciniæ linear, obtuse; flowers sessile in terminal fascicles. Petals white, subovate, obtuse, scarcely longer than the calix. Hab. On the highest gravelly hills, 10 to 15 miles from the Mandan villages.—2. *procumbens.*

S. *procumbens* is also a native of the European Alps, and S. *erecta* is equally indigenous to Siberia. In Pallass's herbarium, now in the possession of A. B. Lambert, Esq. there are 2 very distinct varieties of this plant, 1 with petals which are considerably longer than the calix; neither of these are, however, so small flowered as the Missouri plant. Of this genus there is likewise another species indigenous to the Altaic Alps of Siberia, and a fourth discovered by Tournefort in Cappadocia.

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Order VI.—POLYGYNIA.

301. ZANTHORHIZA. *L.* (Yellow-root.)

Calix none. *Petals* 5. *Lepanthia* 5, pedicellate. *Capsules* 5 to 8, 1-seeded, semibivalve.

Suffruticose, root yellow; leaves simply or doubly pseudopinnate, partly sheathing at the base; flowers terminal, in divided racemes, bracteolate. (Styles about 6 or 8. Germs 2 or 3-seeded. Capsules by abortion 1-seeded; hence it is distinctly related to the second section of the Ranunculaceæ of Jussieu.)

Species. 1. *Z. apiifolia.* Abundant on the banks of the river Ohio, as well as in the southern Atlantic states, where it chiefly affects the mountains.—The only species.

CLASS VI.—HEXANDRIA.

ORDER I.—MONOGYNIA.

† *Flowers caliculate.*

302. TILLANDSIA. *L.* (Long-moss.)

Calix trifid, subconvolute, persistent. *Corolla* trifid, campanulate, (or tubulous). *Capsule* 1 to 3-celled. *Seed* comose.

Leaves mostly radical, scapes simply spiked or paniculate. Mostly parasitic plants presenting the habit of *Agave*, of *Aloe*, or of *Bromelia*. (A small section of the genus, including *T. Usneoides* of the United States, presents a filiform and diffusely dichotomous stem with alternate and filiform leprose leaves, accompanied by peduncles which are 1 or 2-flowered, and a capsule of 1 cell. Scarcely congeners with those splendid species of the tropics, which depending for parasitic nourishment on the boughs and trunks of trees, have their leaves convolutely imbricated so as to retain as in a vase supplies of water which endure for several days together; these produce scapes of flowers of the most diversified and vivid colours, communicating an incidental splendour to the sombre forests in which they are indigenous.)

§ 2. STREPSIA.† Calix double, exterior (bractes?) 2-leaved, interior 3-cleft. Capsule 1-celled, 3-valved, about 9-seeded.—Stems filiform and dichotomous; flowers solitary, or by pairs.

SPECIES. 1. T. *recurvata*. +. 2. *Usneoides*. OBS. Root evanescent. Stem filiform, elastic, diffusely dichotomous, pendulous (from the branches of trees) intorted, hoary and furfuraceously squamose. Leaves filiform, subsemicylindric, curved, covered with a pubescence similar to that of the stem. Flowers inconspicuous. Capsule linear, 3-sided. Seeds comose, pendulous.—The presence of this plant generally indicates an atmosphere of extraordinary and unhealthy moisture. Mr. Pursh states its northern limits to be the borders of the Dismal Swamp in Virginia. Crossing North Carolina and proceeding towards Charleston, I have observed its western limits, in this direction, to be at Camden in South Carolina, from which point cotton is more profitably cultivated and sickness more general.—Its central, black, elastic and curled fibres, which remain after maceration, are not much unlike horse hair, and are used for similar purposes, such as stuffing mattrasses, &c.

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† From ϛρέφω, *I turn*, or *twist*, in allusion to its contorted appearance.

The venerable W. Bartram informs me of the existence of a Bromeliæform species of *Tillandsia*, near the mouth of the Altamaha. This is probably *T. polystachia* of Muhlenberg's Catalogue.

This interesting and singular genus, consisting of 26 species, is, with the above exceptions, exclusively indigenous to tropical America, forming with many other parasitic plants one of the most singular features of its vegetation.

303. TRADESCANTIA. *L.* (Spider-wort.)

Calix 3-leaved. *Petals* 3. *Filaments* villous. *Capsule* 3-celled, few-seeded.

Habit similar to *Commelina*, differing, however, in the disposition of the flowers which are produced in unequal terminal umbells, subtended by a long, 2 or 3-leaved involucrum, and in the filaments which are bearded.

Species. 1. T. *virginica*. Throughout the Atlantic states, and westward into Upper Louisiana. 2. *rosea*.

This genus is almost exclusively indigenous to India and tropical America, there being, besides the above, but a single species hitherto discovered in the rest of the world, viz. at the Cape of Good Hope (Africa.)

304. DIPHYLLEIA. *Michaux.*

Calix 3-leaved, deciduous. *Petals* 6, opposite the calix. *Anthers* growing to the filaments, cells opening from the base to the summit by so many vertical elastic valves. *Berry* 1-celled. *Seeds* 2 or 3, roundish.

Stem 2-leaved; leaves excentrically peltate, palmately lobed and semibifid; flowers in a terminal, solitary, umbellate cyme. (Petals obsolete 3-nerved. Valves of the anthers conspicuous, spreading horizontally, persistent; germ ovate, excentric, 2 to 4-seeded; style none; stigma sessile, transverse, sinuately curved, lipformed, lacunose. This plant, though proximately allied to *Caulophyllum* and distinctly appertaining to the Natural Order Berberides, is at the same time, by its affinity, as well as common resemblance to *Podophyllum* allied in some measure to the PAPAVERACEÆ to which this last genus ought to be referred.

SPECIES. 1. *D. cymosa.* An American genus of a single species, indigenous to the high mountains of North Carolina.

305. CAULOPHYLLUM. *Michaux.*

Calix 3 to 6-leaved, leaves small, unequal, and caducous. *Petals* 6, unguiculate, opposite the calix. *Lepanthia* 6, seated upon the claws of the petals, carneous, subreniform, margin glutinous. *Anthers* growing to the filaments, cells opening by so many vertical elastic valves. *Drupe* stipitate, by abortion 1-seeded.

Scarcely distinct from *Leontice.* Stem 2-leaved, leaves twice or thrice pseudo-ternate, ultimate segments 3-lobed; flowers in a small racemose panicle. (Calix bracteiform, 3 to 6-leaved, small and unequal, 2 or 3 of the leaves often wanting. Petals ovate-lanceolate, unguiculate, margin reflected, 3 to 5-nerved. Lepanthia about one third the length of the petals, unguiculate, narrow reniform, with a carneous and glutinous margin. Anthers as in all the BERBERIDES, having the cells closed by vertical membranaceous valves, which opening elastically from the base, spring upwards in an erect or horizontal position remaining attached to the summits of the anthers. Style excentric, short; stigma like a crooked transverse pubescent line. Germ ovate, ventricose, 2-seeded, seeds seated upon the base of the ovarium; mature fruit drupaceous cartilaginous, 1-seeded; drupe stipitate.)

SPECIES. 1. C. *Thalictroides.* In shady woods throughout the Atlantic and western states. Near Philadelphia, but rare.

A genus of a single species.

306. BERBERIS. *L.* (Barberry.)

Calix 6-leaved. *Petals* 6, each bearing 2 glands upon the claw. *Style* none. *Stigma* umbilicate. *Berry* 1-celled, 2 to 4-seeded. (Filaments of the stamina sensitive; springing forward with elasticity on being touched near the base.)

Shrubs with alternate leaves, often collected in fascicles, surrounded at the base by imbricated gemmaceous scales, and subtended by a simple or trifid spine; flowers issuing from the middle of the fascicles, racemose, subcorymbose or solitary. (The sensitive property existing in the filaments of this genus appears to be mechanically accounted for by Persoon, who remarks, that the filaments at first adhere to the glands, and afterwards rise up with elasticity; in the following genus, however, where no glands exist, the character of sensibility alone must be admitted.)

Species. 1. B. *canadensis*. Older branches covered with small verrucose punctures; spines trifid; leaves rather small, oblong-obovate, distantly serrate; racemes simple, recurved, subcorymbose; leaves of the calix very unequal, 3 interior, oboval, twice the length of the exterior; berry subglobose.—Obs. A smaller and later flowering species than *B. vulgaris*, from which it is sufficiently distinct. Stems and roots yellow; spines trifid, divaricate. Racemes partly corymbose, horizontal or recurved, not pendulous, lower pedicells often near an inch long. Flowers mostly bibracteate, and of an agreeable odor; leaves of the calix paler than the corolla, yellow, conspicuously unequal, exterior oval, about half the length of the interior, interior cuneate-oboval, longer than the corolla. Petals cuneate-oval, bifidly emarginate, deep yellow, biglandular near the base. Filaments of the stamina irritable. Germ 2 to 4-seeded. Berry subglobose, seldom oblong, miniate, 2 rarely 3-seeded.—Hab. On the Alleghany mountains, from Canada to Georgia; also in Tennessee, where it appears almost sempervirent.

Of this genus, which like *Ribes* may be considered subalpine, there is 1 species in Europe, extending to the Levant, and as far as Lebanon in Syria, a second indigenous to the isle of Crete, and *B. sibirica* to the Altaic Alps; but the mountains of South America already afford no less than 12 species of this interesting genus, several of them peculiar to the frigid climate of the Straits of Magellan, and the rocks of Terra del Fuego.

307. * MAHONIA.†

Calix 6-leaved, unequal. *Petals* 6. *Nectariferous glands* none. *Filaments* irritable, each

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† In memory of the late Mr. Bernard McMahon, whose ardent attachment to Botany, and successful introduction of useful and ornamental horticulture into the United States, lays claim to public esteem.

filiformly bidentate; *anthers* (as in *Berberis*) growing to the filaments; cells opening by so many vertical elastic valves. *Berry* many-seeded.

Suffruticose plants with pinnated leaves and terminal aggregated racemes; berries purple.

SPECIES. 1. M. *Aquifolium.* Leaves unequally pinnate, about 3 pair, leaflets oblong-oval, acute, repandly and mucronately toothed, veined, obliquely truncate at the base; petals bifid at the points. *Berberis Aquifolium,* Pursh, Flor. Am. 1. p. 219. t. 4.

OBS. Surculose; stem suffruticose, 6 to 12 inches high; leaves and flowers terminal. Leaves sempervirent, shining, dark green. Racemes aggregated, terminal, erect, many-flowered; pedicells bracteate at the base, sometimes with an additional bracte near the extremity. Calix 9-leaved, leaves in 3 series, exterior bracteiform and small, the 3 interior longer than the corolla, nearly three times the length of the other calix leaves, cuneate-oval, obtuse and nerved. Petals connivent over the stamina, oblong-lanceolate, bifid at the point, destitute of the glands of *Berberis,* but nectariferous at the base. Stamina, filaments linear, flat, about the length of the anthers, with a short filiform process on either side of each, arising from the base of the anther; valves of the anthers erect, conspicuous; cells margined on one side. Style none. Stigma entire, orbicular, flat, and umbilicate. Germ ovate, gibbous or excentric, immature seeds 9, or more, oblong-cylindric, attached to the base of the berry. Flowers sweet-scented, coming out in May, (in Mr. McMahon's green-house.) Cultivated for several years by Mr. McMahon from seeds collected in the Rocky Mountains by the late governour Lewis.

2. *nervosa.* Leaflets 6 pair, ovate-oblong, repandly serrate, somewhat 5-nerved, petals entire.—*Berberis nervosa.* Pursh, 1. p. 219. t. 5.

A third species of this genus is indicated by Mr Pursh as indigenous to the kingdom of Napaul in India; probably in a mountainous country.

303. PRINOS. *L.* (Winter-berry.)

***Calix* small, 6-cleft. *Corolla* monopetalous, subrotate, 6-parted. *Berry* 6-seeded; seeds nuciform.**

Small trees or shrubs with alternate deciduous or sempervirent leaves; peduncles lateral or axillary, usually many-flowered; flowers small, sometimes 5, 7 or 8-cleft, with a similar number of stamina and seeds.

SPECIES. 1. P. *verticillatus*. Dioicous. 2. *ambiguus*. Michaux. Leaves deciduous, oval, entire, with a mucronulate point, petiolate, smooth on both sides; feminine flowers solitary, upon long peduncles. OBS. A small tree with a smooth whitish bark; leaves betwixt oval and elliptic, always entire on the margin, about one inch and a half long, and one inch wide, petioles near half an inch; peduncles of the fruit often 2 inches in length. This is not *P. ambiguus* of Mr. Pursh, which seems to be little more than a variety of No. 1.

3. *lævigatus*. PH. 4. *lanceolatus*. PH. 5. *glaber*. (Inkberries.) 6. *coriaceous*. PH. 7. **atomarius*. Leaves sempervirent, cuneate-oval, acute, coriaceous, apex subserrate, under side atomiferous; younger branches subviscose; pedicells lateral, 1-flowered; berries tuberous.—OBS. Nearly allied to *P. glaber*, but evidently distinct; perhaps more nearly related to *P. coriaceus* of Pursh, but by no means reconcileable with his description. It is a shrub much higher and larger as well as broader leaved than *P. glaber;* the leaves 1 and a half to 2 inches long, and from 10 to 12 lines wide, serratures mucronate, not exceeding 2 pair, situated towards the point, often wanting; under side scattered with minute blackish atoms; younger branches or shoots brown and viscid, in *P. glaber* minutely pubescent. Berry 6-seeded, large. HAB. In Georgia (around Savannah), South and North Carolina; rather rare.

An American genus, of which 4 other species are indigenous to the West Indies.

†† *Flowers spathaceous.*

309. PANCRATIUM. *L.*

Corolla superior, funnelform, with a long tube. *Lepanthium* (nectary) 12-cleft, bearing the stamina.

Spatha 1-leaved, opening laterally, 1 or many-flowered.

SPECIES. 1. P. *mexicanum*. 2. *rotatum*. 3. *maritimum*.

The greater part of this splendid genus is indigenous to tropical America, there are at the same time 2 species in India and 3 in Europe.

310. CRINUM. *L.*

Corolla superior, funnelform, half 6-cleft; tube filiform, border spreading and recurved; segments subulate, chanelled. *Filaments* inserted upon the orifice of the tube, separate.

Spatha 2-parted, many-flowered, in some species bulbs are produced amongst the capsules.

Species. 1. C. *americanum*. Plentiful in the marshes around New Orleans, Louisiana.

A tropical genus of great splendour, of which there are 2 species in India, 1 in Africa, and 3 in America; the native place of *C. bracteatum* is unknown.

311. AMARYLLIS. *L.*

Corolla superior, hexapetaloid, irregular. *Filaments* of the stamina originating from the orifice of the tube, declinate, (or straight,) unequal in proportion or direction.

Spatha 1 or many-flowered, opening laterally.

Species. 1. A. *Atamasco*. In Virginia and Carolina.

A very splendid and numerous genus, chiefly tropical, and principally indigenous to America and the southern extremity of Africa; a few species exist in India and China, 1 in Europe, 1 in Siberia, and 1 on the borders of the Caspian sea.

312. ALLIUM. *L.* (Garlick, Leek, Onion, &c.)

Corolla 6-parted, spreading. *Spatha* many-flowered. *Umbell* crowded. *Capsule* superior, 3-celled, 3-valved, many-seeded.

Flowers capitate or umbellate; leaves flat or fistulous; umbell in some species bulbiferous; in some the filaments are tricuspidate, with the central cusp bearing the anther.

Species. 1. A. *vineale*. Naturalized. Now a prevalent and injurious weed. 2. *fragrans*. 3. *striatum*. 4. *angulosum*. Two varieties, one with white and another with purple flowers. On the banks of the Missouri, abundant. 5. *cernuum*. 6. *stellatum*. Sims, Bot. Mag. Obs. Scape 10 to 15 inches high. Leaf linear, channelled, under side carinate, about a line and a half broad, and 10 lines long. Scape subtriquetrous, umbelliferous, umbell fastigiate, many-flowered, before flowering reflected, afterwards erect. Spatha acute. Three exterior petals shorter, ovate, subcarinate, rather obtuse, interior petals oblongated. Stamina subulate, simple. Capsule turbinate, triquetrous, angles bidentate above, cells 2-seeded. 7. *triflorum.* PH. Described by Mr. Rafinesque under the same name in the New York Medical Repository, 2. p. 362. No. 39. in 1808. 8. *canadense.* 9. *tricoccum.* In this species the flowers only appear after the decay of the leaves.

This vast genus of more than 60 species is almost exclusively European, extending, however, into Siberia and northern Africa, many of the species are alpine, or subalpine. Several have ranked amongst condiments or articles of diet from the remotest antiquity.

313. BRODIÆA. *Smith.*

Corolla inferior, campanulate, 6-parted. *Filaments* of the stamina inserted around the orifice. *Germ* pedicellate. *Capsule* 3-celled; cells many-seeded.

Habit somewhat similar to *Allium;* umbell many-flowered.

SPECIES. 1. B. *grandiflora.* On the plains of the Columbia and Missouri. M. Lewis. The only species of the genus.

314. HYPOXIS. *L.*

Spatha 2-valved. *Corolla* superior, 6-parted, persistent. *Capsule* elongated, narrower at the base, 3-celled, many-seeded. *Seeds* roundish, naked.

Root fibrous; leaves gramineous; scapes 1 or few-flowered.

SPECIES. 1. H. *erecta.* 2. *graminea.* 3. *juncea.*

The rest of this genus of 1[illegible] species, with the exception of *H. decumbens* of Jamaica, is exclusively indigenous to the Cape of Good Hope.

315. PONTEDERIA. *L.*

Corolla inferior, 6-cleft, bilabiate; under side of the tube perforated with 3 longitudinal foramina, lower part persistent, calicine. *Stamina* unequally inserted, 3 of them upon the summit of the tube. *Utriculus* muricate, 1-seeded.

Aquatic plants; leaves partly radical, of a form betwixt cordate and sagittate; scapes unifoliate; flowers aggregated in spikes, or fastigiated in unequal umbells, colour blue, upper lip marked with a discoloured spot.

SPECIES. 1. P. *cordata.* HAB. Chiefly within the limits of tide-water, throughout the Atlantic coast. OBS. Leaves sheathing, sheath entire; petiole about one third the length of the leaf. Spike at first protected by an ovate spathe, pubescent. Flowers aggregated by 3's and 4's, sessile, bilabiate, upper lip flat, 3-toothed, blue with a greenish variolate spot in the centre; lower lip 3-parted; tube curved, about equal in length with the limb, marked with 6 longitudinal striæ, and on the under side singularly perforated with 3 gashes or longitudinal foramina. Stamina 6, 3 near the base and 3 towards the summit of the tube; the 3 exserted stamina of the lower lip variable in length. Style filiform, blue, marcescent with the corolla and usually about its length, shortest when the stamina are most exserted; stigma entire, minute. Germ rather gibbous, ovate, 1-seeded. Fruit a 1-seeded, greenish, muricated utriculus formed by the persistent calicine base of the corolla; cristated ridges of the fruit 6. Perisperm ovoid, conic, very white, sweet and farinaceous, (probably nutritious.) Corculum in the axis of the perisperm, cylindric, inverted, (or with the radical upwards); gemmula † oval, conspicuous.

2. *angustifolia.* Pursh. Flor. Am. 1. p. 224. Leaves acute, elongated-triangular, base truncate-subcordate, segments of the lower lip of the corolla linear-lanceolate.—In subalpine lakes on the Alleghany mountains. New York, &c. *P. mucronata?* Rafinesque New York, Med. Repos. 2. p. 352.

3. * *lanceolata.* Leaf narrow, oblong-lanceolate, obtuse, base entire, petiole very short; spike short. HAB. Near Savannah in Georgia—Dr. W. Baldwyn. Also in South Carolina. Scape less than a foot long; spathe very obtuse. Leaf nearly a span long, about an inch wide, very opaque, in *P. cordata* the leaf is diaphanous when held to the light. Corolla blue, segments of the lower lip linear, longer than

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† *Little bud,* this word is used here to distinguish betwixt true and apparent cotyledones, in the present plant there is no proper cotyledones, merely a minute bud similar to the perfect plant.

the tube, upper lip marked with a broad greenish spot, unexpanded flowers and filaments of the stamina thickly covered with round, blackish, glandular? atoms; tube perforated with 3 gashes. Three lower stamina sometimes longer than the corolla.

Of this singular genus of aquatics there are 3 species in India and 2 in tropical America. The *P. limosa* belongs to the genus *Heteranthera*, having a capsule of 3 cells, a character very erroneously retained to *Pontederia* in which there is no capsule at all.

††† *Flowers naked.*

316. CONOSTYLIS. *R. Brown*, Flor. Nov. Holland. 1. p. 300.

Corolla semisuperior, 6-cleft, persistent, woolly. *Anthers* erect. *Style* conic, tripartile. *Stigma* simple. *Capsule* opening at the summit, 3-celled, 3-valved, many-seeded.

Leaves gramineous or caricine; scapes corymbiferous; flowers tomentose.

SPECIES. 1. C. *americana*. PH. Capsule triquetrous, half-inferior, valves septiferous in the middle; seeds small, whitish, oblong-subcylindric, longitudinally striated, attenuated towards the base, seated near the bottom of the capsule. Pubescence simple, not ramulose.

Probably not exactly a congener with the New Holland species of this genus. It has been called *Lophiola aurea* by the editors of the Botanical Magazine.

317. ALETRIS. *L.* (Star-wort.)

Corolla tubulous, ovate, summit 6-cleft, rugose, persistent. *Stamina* inserted upon the margin of the orifice. *Style* triquetrous, tripartile. *Capsule* semisuperior, 3-celled, many-seeded.

Root præmorse, tuberous, bitter; leaves radical, disposed in a stellate rosette; scapes simple; flowers spiked. (Capsule opening horizontally all round?† seeds minute, subcylindric.)

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† I am not satisfactorily acquainted with the mode by which the capsule opens; it certainly does not open above, the summit being firmly closed and indurated.

SPECIES. 1. A. *farinosa*. 2. *aurea*. Mr. Le Conte distinguishes several species of this genus confounded with *A. farinosa*.

An American genus, excluding the gigantic *A? fragrans* of Africa, which must indeed have been very negligently referred to *Aletris*, according to the description of it by Jussieu.

318. YUCCA. *L.* (Adam's Needle.)

Corolla inferior, campanulate, segments not nectariferous. *Filaments* of the stamina subclavate. *Style* none. *Capsule* oblong, with 3 obtuse angles, 3-celled, opening at the summit. *Seeds* flat.

Proper stem none; caudex inconspicuous or assurgent and shrubby; leaves comose, (or crowded and terminal) ensiform, spiny at the point, sometimes with a sphacelate filamentiferous margin; flowers in a terminal irregular panicle, each protected by 2 spathes; corolla white, roundish campanulate.

SPECIES. 1. Y. *filamentosa*. 2. *angustifolia*. Stemless; leaves glaucous, long, linear and mucronate, margin filamentose; capsules large and dry, oblong-obovate.—HAB. On the banks of the Missouri, from the confluence of the river Platte to the mountains. Flowers large and white; leaves scarcely half an inch wide.

3. *recurvifolia*. In sandy fields, North Carolina. *v. v.* 4. *gloriosa*. Capsule internally filled with a sweetish pulp of a purple colour. This plant is called *petre*, by the Mexican Spaniards, and used for cordage, ropes, &c. as well as for packing-cloth, and is extremely durable. 5. *aloifolia*. There is also a 6th species of this genus discovered by the late Mr. John Lyons, improperly called *Y. angustifolia* by the gardeners around London; it is nearly allied to *Y. filamentosa*, but much narrower leaved; with its specific characters I am unacquainted.

An American genus, affecting the sandy sea-coasts.

319. AGAVE. *L.*

Corolla superior, erect, tubulous or funnelform. *Staminiferous* filaments longer than the corolla, erect. *Capsule* (inferior) triangular, many-seeded.

Caudex sometimes ligneous and ascending; leaves radical, or comose, rigid, and channelled, with the point and often the margin spiny, younger leaves obvolute, or rolled around each other spirally; panicle ascending from the caudex, very large and pyramidal. A genus scarcely differing generically from *Aloe* except in the situation of the capsule, which is inferior.

Species. 1. A. *virginica*. From Virginia to Florida, also in Upper Louisiana.

An American genus, chiefly tropical. *A. americana* is probably the largest of all herbaceous plants, its panicles of flowers are of the magnitude of small trees. In Peru and Mexico it has long been cultivated by the indigenes and colonists for various and important economical purposes. It affords an abundant vinous liquor and by distillation alkohol, of the fibres of its enormous leaves are made thread and paper, &c.

320. HEMEROCALLIS. *L.* (Day Lily.)

Corolla **campanulate; tube cylindric. *Stamina* declinate. *Stigma* rather small, simple, and partly villous.**

Roots fasciculated; scape corymbose.

Species. 1. H. *fulva*. Leaves broad linear, carinate, petals flat and acute, nerves of the petals undivided. Willd. Sp. 2. p. 197. Naturalized in moist meadows around Philadelphia, and also in secluded situations on the banks of the Schuylkill. I have introduced it into the American Flora to mark its future progress, which is already such, as easily to impose upon a stranger for an indigenous plant.

The *H. flava* and *H. graminea*, are said to be natives of Siberia, and *H. fulva* of the Levant; there are also 3 other species of this genus indigenous to Japan.

321. PHALANGIUM. *Tournefort.*

Corolla **of 6 petals, spreading. *Filaments* naked or smooth. *Capsule* ovate. *Seeds* angular.**

Roots often fibrose or fasciculate. Leaves flat. Flowers mostly white or purplish.

Species. 1. P. *esculentum*. T. N. in Fras. Catal. 1813. *Scilla esculenta*. Bot. Mag. 1596. *P. Quamash*, Pursh, Flor. Am. 1. p. 226. In the spring of the year 1810, I discovered this plant near the confluence of Huron river and Lake Erie, I have since found it abundantly in alluvial situations a few miles from St. Louis, Louisiana, and more recently very plentiful on the lowest banks of the Ohio. The late governor Lewis brought specimens of this plant from the vallies of the Rocky Mountains, and informs us that the roots form a favourite article of diet amongst the aborigines of the mountains. The distribution of this plant from east to west is over an extent of more than 2000 miles, but from north to south not more than 300, if so much.—This species appears to be somewhat allied to *P. glaucum* of Peru.

2. *croceum*. Obs. Leaves arid, gramineous; raceme few-flowered (10 to 12 or more), lower flowers half an inch apart; bractes very obtuse and membranaceous, about a line long, obvallate; pedicells erect, filiform, nearly an inch; flower about the size and colour of *Narthecium americanum*, or saffron yellow, the centre of the petals, particularly on the exterior, being deeper coloured or brownish; petals, (or rather segments persistent,) ovate-oblong, rather narrow, spreading; filaments of the stamina subulate, smooth, somewhat shorter than the petals; anthers pale, oblong; style subulate, distinctly trifid at the summit; stigmata subulate, connivent. As the inflorescence differs so materially from Michaux's plant, which he describes as producing "a pyramidal spike," it may justly be doubted whether these remarks apply to it, or to a distinct species; at all events I am fully satisfied that it is a *Phalangium*.

This extensive genus is principally confined to the Cape of Good Hope; there are, however, a few species in the south of Europe, and 4 in Peru.

322. NARTHECIUM. *L.*

Corolla inferior, petals 6, spreading, persistent. *Filaments* filiform, hirsute. *Capsule* prismatic, 3-celled, many-seeded. *Seeds* filiformly subulated at each extremity. *Calix* none.

Root fibrous; leaves small, ensiform; scape nearly naked, flowers spiked, yellow.

Species. 1. N. *americanum*. Capsule subulate, twice the length of the persistent corolla; seeds slender, subterete, as long as the capsule, caudately subulated at each extremity.

Of this genus there is but another species, indigenous to the turf morasses of the north of Europe.

323. ORNITHOGALUM. *L.* (Star of Bethlehem.)

Corolla of 6 petals, erect, persistent, above the middle, spreading. *Filaments* dilated at the base or subulate. *Capsule* superior, roundish, 3-celled. *Seeds* roundish, naked.

Roots bulbous; scapes few-flowered, subumbellate, corymbose, or racemose.

Species. 1. O. *umbellatum.* Introduced; becoming a troublesome and inextinguishable weed in moist meadows, forming exclusive plats. In the vicinity of Philadelphia.

This extensive and polymorphous genus of near 50 species is chiefly indigenous to the south Europe, to Barbary, Siberia, and the Cape of Good Hope. The bulbs of some of the species, though not probably very palatable, have been used for food in times of scarcity, and during the existence of barbarous society. The roots of *Ornithogalum pilosum?* are still eaten by the Greeks of the Crimea, according to Pallas.

324. LILIUM. *L.* (Lily.)

Corolla 6-petalled, campanulate; petals mostly reflected, marked with a longitudinal nectariferous line. *Stamina* shorter than the style. *Stigma* undivided. *Capsule* superior, valves connected by cancellate hairs. *Seeds* flat.

Roots bulbous, bulbs squamose; scales soboliferous; stems simple, leafy, leaves alternate or verticillate; flowers subumbellate or pyramidally racemose, mostly cernuous.

Species. 1. L. *Catesbæi.* 2. *pudicum.* Ph. Apparently a *Fritillaria.* 3. *pensylvanicum.* Probably a hybrid of the gardens, as I have understood it to bear imperfect flowers. 4. **andinum.* T. N. in Fras. Catal. 1813. Leaves scattered, somewhat linear-oblong, acute, floral leaves verticillate; flowers 1 to 5 terminal, erect, peduncles smooth; corolla campanulate, petals lanceolate, unguiculate, alternately narrower, spotted.—Obs. *L. umbellatum,* Pursh, Fl. Am. 1. p. 229. it has not the smallest affinity with *L. concolor* of Salisbury, Parad. Lond. 47. The flower is of the size and form of *L. philadelphicum* to which it bears a near affinity, being of a deep scarlet, spotted with brown towards the claws which are long and narrow, the

3 inner ones, as is usual, channelled, with an involute margin; germ and stigma very dark brown, longer than the stamina. Flowers commonly in 5's. Flowering in June. Hab. In moist situations, on the margins of small streams and vallies, abundant, from Fort Mandan to the mountains. 5. *philadelphicum.* 6. *canadense.* 7. *carolinianum.* Very nearly allied to *L. superbum.* I have only seen it in the mountains of North Carolina, and with the stem 1-flowered; by cultivation, I am well assured, that it produces many flowers on the stem in proliferous stages, and is then apparently *L. superbum.* 8. *superbum.*

Of this beautiful genus there are 3 species in the south of Europe, one of which extends to Siberia, 2 in the Levant, 1 in Kamschatka, 6 in Japan and 2 in China, of which the *L. tigrinum* is the most splendid of the genus, and has been, with others, cultivated by the Chinese from time immemorial. It is now also introduced into the garden of Mr. Landreth, near Philadelphia.

325. FRITILLARIA. *L.* (Checquered Lily.)

Corolla 6-petalled, campanulate with a nectariferous cavity above the claws. *Stamina* the length of the corolla. *Capsule* superior. *Seeds* flat.

Roots bulbous, bulbs solid, generally two, one upon the other; flowers terminal, solitary, naked, or alternated in a loose raceme, white or purplish, and sometimes checquered.

Species. 1. F. *lanceolata.* Pursh. 2. **alba.* Glaucescent; leaves somewhat remote, all alternate, oblong-linear, oblique and sessile, nearly flat and obtuse, under side substriated; flowers axillary and terminal, 1 to 3, rather large and white. Hab. In vallies and declivities, from Fort Mandan to the mountains; flowering in April. Obs. Root small, bulb subsquamose as in *Lilium!* Stems solitary, about a foot high; leaves near 2 inches long, about 2 lines wide. Flowers sometimes in a raceme of 5. Capsule subturbinate, with 3 acute angles, tridentate below. Seeds large, triangular, flat, and pale coloured.

Two of the species of this small genus including *F. imperialis,* are indigenous to Persia, 1 to the Pyrenees and Russia, 1 to the Levant, the *F. latifolia* to Caucasus, *F. Melagris* to the south of Europe, and *F. verticillata* to Siberia.

326. ERYTHRONIUM. *L.* (Dog's-tooth Violet.)

Corolla **subcampanulate, petals 6, reflected, the 3 interior usually furnished with a callous denture on each side near the base, and a nectariferous pore.** ***Capsule*** **superior, roundish, or elliptic, substipitate.** ***Seeds*** **ovate?**

Root bulbous; leaves a single pair, sheathing, maculate; scape 1-flowered, flower cernuous, yellow, rarely white, or violaceous.

Species. **1. E.** ***americanum.*** **Ker, in Bot. Mag. 1113. Hortus Kewensis, 1. p. 248.** ***E. lanceolatum.*** **Pursh, 1. p. 230.** Leaves thickly covered with superficial punctures; petals oblong-lanceolate, points obtuse, interior ones bidentate near the base; style clavate, stigma entire, internally pubescent. Hab. Throughout the Atlantic states, on the lowest alluvial banks of streams. Obs. Root a small tunicated, brown, ovate bulb. Leaves elliptic-lanceolate, with somewhat acuminated callous points, marbled with green and brown (after the manner of the genus). Petals spotted near the base, reflected, inner ones ovate-lanceolate with a longitudinal groove on the inner side communicating at the base with a minute nectariferous cist, on either side of these petals there is an auriculated crisp tooth embracing the filaments, (nothing like a gland or callosity *at the base!*) Style attenuated downwards, clavate, 3-sided, tubular or perforated; stigma entire, margin crenulate. Germ elliptic. Capsule substipitate. 2. *grandiflorum*, Pursh. A species not satisfactorily defined.

3. * *albidum.* **Leaf impunctate; petals linear-lanceolate,** points obtuse, inner ones without dentures, subunguiculate; style filiformly attenuated downwards; stigma trifid, lobes reflected, internally papillose. Hab. Throughout the western states and territories into Upper Louisiana, and on the banks of the Missouri, where no other species appears to exist. Dr. Wray of Augusta informed me of the existence of a white *Erythronium* in the vicinity of that place, which is also probably the present species; the colour is constantly white, sometimes with an external shade of blue; the leaf rather short; petals often near an inch and a half long, scarcely 2 lines wide, with the germ elliptic. There appears to be another yellow flowered species confounded with *E. americanum*, and nearly allied to the pre-

sent, having lanceolate-oblong petals, all without dentures? but I have not now specimens whereby to define it.

Of this genus there is but a single species out of America indigenous to Siberia and the south of Europe.

327. UVULARIA. *L.*

Corolla inferior, 6-petalled, erect; claws of the petals each furnished with a nectariferous cavity. *Filaments* very short, growing to the anthers. *Stigmata* reflected. *Capsule* 3-angled, 3-celled, 3-valved; valves septiferous in the middle. *Seeds* many, subglobose, arillate at the hilum.

Roots ramose and carneous; leaves sessile or amplexicaule; peduncles 1-flowered, axillary.

Species. 1. U. *perfoliata*. 2. *flava*. 3. *grandiflora*. 4. *sessilifolia*. 5. *puberula*.

A North American genus with the exception of 2 species in Japan.

328. STREPTOPUS. *Michaux.*

Corolla inferior, 6-petalled, subcampanulate. *Stigma* very short. *Berry* subglobose, smooth, 3-celled. *Seeds* few, hilum naked.

Roots perennial, fibrous; leaves sessile or amplexicaule; flowers axillary and terminal, pedicells 1 or 2-flowered.

Species. 1. S. *distortus*. 2. *roseus*. Obs. Stem dichotomous; flowers axillary and terminal, solitary or by pairs, upon the same pedicell and horizontally divaricate. 4. *lanuginosus*. Flowers by pairs terminal, upon a very short pedicell.

An American genus, with the exception of *S. distortus*, which is also indigenous to the mountains of Europe.

329. CONVALLARIA. *L.* (Lily of the Valley.)

Corolla inferior, 6 cleft, campanulate. *Stamina* shorter than the corolla, inserted upon its base. *Berry* globose, 3-celled; cells 1 to 2-seeded.

Bifoliate; scape racemose; flowers nodding.

Species. 1. C. *majalis*. Common also to Europe; flowers fragrant.

There are but 2 other species of this genus as it is now constituted, indigenous to Japan.

330. SMILACINA. *Defontaines.*

Corolla inferior, 6-parted, spreading. *Filaments* divergent, attached to the base of the laciniæ. *Berry* globose, 3-celled.

Flowers terminal, subumbellate, racemose or paniculate. Stems bifoliate or foliose. (Filaments and anthers distinct.)

Species. 1. S. *umbelluta.* Flowers white, spotted with brown. 2. *borealis.* Leaves radical. Roots fibrous, stoloniferous. Flowers greenish, nodding. Berries of both these species azure blue, and opaque. The whole plant, as well as the preceding, sweetish and gramineous to the taste. 3. *canadensis.* Flowers tetrandrous. Stem 2, rarely 3-leaved. Berries red; punctate, pellucid.—Almost uniformly occurring under the shade of the *Abies canadensis* or Spruce. A mere variety of *S. bifolia?* 4. *trifolia.* *v. v.* Near Green-bay, Lake Michigan. 5. *stellata.* *v. v.* Abundant on the banks of Lake Erie (Ohio,) and on the Missouri to the Mandans. 6. *ciliata.* +. 7. *racemosa.* Berries scarlet, pellucid.

A North American genus, with the exception of *S. bifolia,* also indigenous to the shady forests of Europe.

331. POLYGONATUM. *Desfontaines* (Solomon's-Seal.)

Corolla inferior, 6-cleft, cylindric. *Filaments* inserted on the upper part of the tube. *Berry* 3-celled; cells 2-seeded.

Stems simple, angular, or terete. Flowers axillary, secund; peduncles 2 or more flowered, nodding.

Species. 1. P. *angustifolium.* 2. *canaliculatum.* 3. *pubescens.* A doubtful species. 4. *hirtum.* Stem angular, hispid. 5 *multiflorum.* Peduncles many-flowered, stem round. (Cells of the germ mostly 4-seeded.) 6. *latifolium.* Stem angular; peduncles 1 or many-flowered. The largest species called "Wild Asparagus," and eaten with safety.

Of this genus there are 4 species in Europe, and 2 of them common to the United States, viz. Nos. 5 and 6.

332. ASPARAGUS. *L.*

Corolla inferior, 6-parted, erect; the 3 interior segments reflected towards the points. *Style* very short. *Stigmata* 3. *Berry* 3-celled, many-seeded.

Leaves fasciculated, usually subulate or setaceous. Stems branched, herbaceous or frutescent; flowers mostly solitary and axillary; spatha 2-valved. In some species the branchlets and fascicles of leaves are each subtended by a spine.

Species. 1. A. *officinalis.* Scarcely yet naturalized in the United States.

The principal part of this genus is indigenous to the Cape of Good Hope, there are also a few species in India and in the south of Europe.

†††† *Flowers incomplete.*

333. ORONTIUM. *L.* (Golden Club.)

Spadix cylindric, covered with florets. *Corolla* about 6-petalled, naked. *Style* and stigma scarcely any. *Utriculus* 1-seeded.

Spatha radical; spadix pedicellate; flowers hermaphrodite; the lowest, with 6 stamina, the upper with 4. Leaves entire, the lamina vertically coalescing with the petiole.

Species. 1. O. *aquaticum.* From Canada to Carolina, almost exclusively within the limits of tide-water? in river marshes. Obs. Pedicell of the spadix nearly semicylindric, upper part white, flowering portion bright yellow, cylindric-conic; lower flowers with 6 or 5, hooded, and dilated flower scales, and as many stamina disposed under them; upper flower scales generally 4, with 4 stamens. Filaments about the length of the anthers, flat, disposed around the base of the angular germ. Anthers 2-celled, adnate to the filaments, at first large, bursting by almost terminal scars or oblique cicatrices, at length appearing like short poliniferous cups, which are persistent and marcescent. Style none, stigma obsolete, in the form of a small and, at length, somewhat prominent, umbilical puncture or variolus. Utriculus naked, green, roundish, 1-seeded, the size of a large pea. Gemmula viviparous, or commencing to vegetate as soon as mature, (cotyledones none,) primary vaginate leaves 2 or 3, linear, and subulate; the 4th leaf usually exhibiting a small lamina. Primary radical conspicuous, conic. Somorhize † roundish, large, dark green, umbilically depressed at the summit, having a small concealed internal cavity, and a lateral shallow groove for the reception of the gemmula which is appressed to it and curved over the greater part of the somorhize.

Of this genus there is a second species in Japan.

334. ACORUS. *L.* (Calamus, Sweet-Flag.)

Spadix cylindric, covered with florets. *Corolla* 6-petalled, naked. *Style* none; stigma a mere prominent point. *Capsule* 3-celled, 3-seeded?

Spadix coming out laterally upon the middle of the leaf, which is produced beyond it in the form of a sword blade. Leaves ensiform. Root aromatic.

Species. 1. A *Calamus*. Common and indigenous. Stamina varying from 6, to 5 and 4, on the same spadix. Flowers tessellately aggregated, greenish.

Common to Europe and North America, there is also a second species in China.

335. JUNCUS. *L.* (Rush.)

Calix inferior, 6-parted, equal, persistent. *Corolla* none. *Stigmata* 3. *Capsule* 1-celled, 3-valved. *Seeds* numerous.

Stem simple, gramineous, without nodes, and leafless, or nodose with the leaves sheathing the nodes, flowers terminal or lateral, corymbose or paniculate, branchlets sheathed at the base.

Species. 1. J. *acutus*. 2. *conglomeratus*. 3 *effusus*. 4. *filiformis*. 5. *bicornis*. 6. *setaceus*. 7. *marginatus*. 8. *nodosus*. 9. *polycephalus*. 10. *sylvaticus*. 11. *verticillatus*. 12. *acuminatus*. 13. *aristatus*. 14. *bulbosus*. 15. *tenuis*. 16. *bufonius*. 17. *campestris*. 18. *melanocarpus*. 19. *repens*.

Chiefly an European and North American genus, with the exception, however, of a few species in Barbary, South America, and the Cape of Good Hope.

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† In this case a large round, ingerminative body laterally connected by a vascular system to the gemmule and forming the principal part of the seed.

336. PEPLIS. *L.* (Water Purslane.)

Calix **campanulate; border 12-cleft, segments alternately reflected. *Petals* 6, (or none,) inserted upon the calix. *Capsule* superior, 2-celled, many-seeded, covered by the calix; dissepiment seminiferous.**

A creeping plant, with opposite leaves, peculiar to marshes and the margins of ponds; flowers small, axillary, solitary and opposite; petals fugacious, often wanting; capsule membranaceous. *P. indica* appears to be a species of *Amannia;* and *P. portula* of Europe the only genuine species of this genus ought also to be compared with *Amannia*, from which it is scarcely distinct.

Species. 1. P. *americana*. Pursh, 1. p. 238. Probably the plant which I have published in the Journal of the Academy of Natural Sciences of Philadelphia. Vol. I. No. 6. p. 117. t. 6. f. 1. under the name of *Crypta minima*, but this being a matter of uncertainty, I have inserted the genus for future examination. I must, however, here remark, in addition to that publication, the affinity which evidently exists between *Crypta* and the genus *Elatine*. The seeds of *E. Alsinastrum*, as well as the disposition of the capsule, are abviously similar, and the former equally discrepant, apparently with the character of the Caryophylleæ; the essential differences of these 2 genera consist in the number and disposition of the parts of fructification, and the absence or presence of styles; in *Crypta* the petals and stamina are equal in number; in *Elatine* the stamina are double the number of the petals, but the stamina themselves appear similar, in this genus there are also 3 or 4 cloven styles sufficiently visible, in *Crypta* 2 or 3 minute and microscopic points in place of styles and stigmas. To these distinctions we may add the deficiency of number in *Crypta* which would not, however, otherwise have proved any thing essential. The difference of habit between these 2 genera is also considerable.

337. FLŒRKEA. *Willdenow.*

Calix **3-leaved. *Corolla* of 3 petals, shorter than the calix. *Style* bifid. *Pericarp* none. *Seeds* 2 or 3, membranaceously coated, superior.**

A somewhat succulent plant, growing in alluvial marshes, but not aquatic. Annual, and decumbent; leaves alternate, trifid and pinnatifid, marcescent; peduncles solitary, axillary, deflected and incrassated during the maturing of the fruit.—Calix persistent, conspicuous, petals and stamina minute; fruit di or tricoccus, naked. Corculum erect, flat; cotyledones convex, peltate; radical inferior. Perisperm none.

SPECIES. 1. F. *palustris*. (*F. proserpinacoides*, Willd.) OBS. Stem terete. Leaves somewhat succulent, alternate, pseudopinnate; segments mostly 5, narrow, oblong-lanceolate, simple, ultimate divisions confluent at the base, lateral ones 2 or 3-lobed, somewhat obtuse, di or trichotomously and numerously nerved, (when held to the light;) petiole long, semicylindric, channelled. Peduncles axillary, at first short, but gradually elongated nearly to 2 inches. Calix 3-parted, segments ovate, acute, thickish and green. Petals 3, white, alternating with the calix, and much smaller, oblong, somewhat obtuse, and persistent, pubescent at the base (seen through a lens), inserted upon the calix. Stamina 6, minute, irregularly disposed, arising from the base of the calix; filaments capillary, alternately articulated upon 3 glands near their base; anthers roundish. Style 1, inserted between the fruit, and unconnected with it in every direction, apex bifid, stigmas 2, small, roundish. Fruit within the persistent calix, consisting of 2, and rarely 3, roundish, naked, but membranaceously coated seeds; integument papillosely rugose.

NOTE. The seed appears readily divisible into 2 elliptic, convex, fleshy lobes, a little acrid to the taste; but the singular disposition of the embryon, immersed, and included, near the base of the lobes, in a small cavity, so as to render the cotyledones very excentrically peltate, are circumstances which lead me to doubt the validity of these apparent seed-lobes, and I must recommend it to further examination.

HAB. In Pennsylvania, (on the banks of the Schuylkill near Philadelphia; rare.)

It is not easy to decide upon the natural affinities of this singular genus, for the present, it can only be placed to some order without any distinct relation; as such, it may be referred to the end of the PORTULACEÆ. With *Nectris* it appears to have no affinity whatever.

ORDER II.—DIGYNIA.

338. NECTRIS. *Willd,*

Calix* 6-parted, inferior, the 3 interior segments petaloid, smaller and obtuse. *Corolla

none. *Capsule* (utriculus?) subcarnose, 1-celled, 1 to 2-seeded, crowned by the persistent style.

An aquatic plant; leaves without sheathing petioles; those of the stem demersed, opposite, digitate, complicately and trichotomously divided, segments linear; floral leaves floating, alternate, orbicular, peltate, entire; flowers solitary, axillary.

Species. 1. N. *aquatica*. The only species of the genus, indigenous to the warmer parts of the U. S. and tropical America. The *N. pinnata* of Mr. Pursh is probably a variety, but certainly a very different plant from *Floerkea.*

ORDER III.—TRIGYNIA.

339. SABAL. *Adanson.* (Small Fan-palm.)

Flowers hermaphrodite.—*Spathes* partial. *Filaments* of the stamina unconnected, thickish at the base. *Drupe* spherical, dry and cartilaginous, 1-seeded. *Seed* indurated. *Embryon* lateral.

Stemless, or with a caudex sometimes a little elongated; frond palmate, fanshaped, stipe unarmed; flowers paniculated (or the spadix† branched.)

Species. 1. S. *Adansoni*. In troublesome abundance around New Orleans; but less frequent than other species in Georgia and Carolina.—The fruit is about the size and form of black pepper, and almost of a horny consistence. The strips of the leaves are handwove or platted into various utensils by the indigenes. There can be no reason to suppose that the fronds of this species can be less serviceable for platting into hats than those of *Chamærops palmetto*, a very durable manufacture, and justly esteemed in London.

2. *Histrix*. Pursh, Flor. Am. 1. p. 240. under *Chamærops.* The fronds undistinguishable from those of the preceding species by any other character than the appearance of long *axillary* spines: the inflorescence has not yet been compared; its rare occurrence amidst so much of *S. Adan-*

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† There is, however, nothing similar to the *spadix* of the Aroideæ either in this or the following genus; a sophistical circumstance with which many of my readers will doubtless be unacquainted.

soni, leads to a suspicion of its validity as a distinct species. *v. v.* In the vicinity of Savannah pointed out to me by the kindness of Dr. Baldwyn.—The only species of the genus.

340. CHAMÆROPS. *L.* (Fan-palm, Palmetto.)

Polygamous.—*Spathe* compressed. *Spadix* branched. *Calix* 3-parted. *Corolla* of 3 petals. *Filaments* of the stamina partly united. *Drupe* 3-celled, by abortion 1-seeded. Masculine flowers on a distinct plant.

Caudex arborescent or inconspicuous; fronds palmate, flabelliform; stipes spiny or naked. (Germ 3-celled, cells 1-seeded, 2 of the seeds abortive. Mich.) Drupe solitary in the American species; probably not congeners with *C. humilis*.

Species. 1. C. *Palmetto*. Cabbage-palm. 2. *serrulata*. The central part of the caudex is more edible than that of the preceding.—Dr Baldwyn. Margin of the stipe serrated with short spines; drupe solitary oblong, nearly twice the size of that of *Sabal Adansoni*, which it resembles in every other respect.

Of this genus there is 1 species common to Spain and Barbary, and another to Japan.

341. NOLINEA. *Michaux.*

Corolla 6-parted, spreading; segments subequal. *Style* very short; stigmas recurved. *Capsule* 3-sided, membranaceous, 3-celled, opening by the bipartile dissepiment; cells 1-seeded. *Seeds* incurved, convex, 1 or 2 of them abortive.

Root bulbous; leaves surrounding the base of the scape, coriaceous and gramineous; flowers paniculate, small.

Species. 1. N. *georgiana*. Allied to *Helonias*. The only species of the genus. Abundant towards Augusta in Georgia. *v. v.*

342. CALOCHORTUS. *Pursh.*

Corolla 6-parted, spreading, the 3 interior segments larger with the upper side woolly, and marked near the base with a roundish smooth spot. *Filaments* very short, inserted upon the base of the petals. *Anthers* sagittate, erect. *Stigma* reflected. *Capsule* 3-celled.

Bulb subglobose, solid. Leaf subsolitary, radical, gramineous; scape about 3-flowered; flowers white, the inner petals with a purple spot. Apparently allied to *Hypoxis*.

Species. 1. *C. elegans.* Pursh, Flor. Am. 1. p. 240. Within the Northern Andes or Rocky Mountains. The only species.

343. MELANTHIUM. *L.*

Polygamous.—*Calix* none. *Corolla* rotate, 6-parted: segments unguiculate, biglandulous at the base, claws staminiferous. *Capsule* exserted, subovate, apex partly trifid, 3-celled. *Seeds* many, membranaceously alated.

Root (in the American species) truncate and horizontal or rarely bulbous; leaves gramineous, flaccid; scape often tall, and pyramidally paniculate; petals conspicuously unguiculate, calicine, progessively changing colour, bimaculate.

Species. 1. *M. virginicum.* 2. *monoicum.* 3. *hybridum.* Nearly allied to *Veratrum.* Leaves elliptic-oblong, somewhat plaited. Upper part of the panicle feminine in an elongated raceme; petals unguiculated, but without the characteristic glandular spots, interior ones roundish ovate, acute in the male, obtuse, and a little undulated in the female, both nearly smooth. Styles uncinate, a little shorter than the germ. Capsule large, appearing like 3 united by the inner margins, cells 3, 5, and probably sometimes 6 seeded, seeds imbricated, flat, subelliptic, with a double alated margin, about the size of the seeds of some species of Pinus. *v. v.* In the mountains of North Carolina. 4. **glaucum.* Root a tunicated bulb; leaves glaucous, gramineous, marginated; raceme mostly simple, few-flowered; flowers hermaphrodite, petals roundish, unguiculate, bimaculate; seeds subulately alated. Hab. On the gravelly banks of the St. Laurence in calcareous soil; around the Cataract of Niagara, on the borders of Lakes Erie, Huron and Michigan and up the Missouri to Fort Mandan. It appears to be considerably allied to *Anthericum* in habit; scarcely a foot high; leaves almost similar to *M. virginicum*; flowers whitish, raceme sometimes a little divided at the base. Flowering in July and August.

The principal part of this genus is indigenous to the Cape of Good Hope, there is 1 species also in Siberia and 1 in India. *M. pumilum* of Tierra del Fuego, *M. gramineum* and *M. punctatum* of Barbary, cannot certainly belong to this genus.

344. ZIGADENUS. *Michaux.*

Corolla 6-parted, spreading; segments subequal, above the base narrower and biglandulous. *Stamina* inserted in contact with the germ. *Styles* 3, partly united at the base. *Capsule* included in the persistent corolla, sub-ovate, acute, 3-celled, cells many seeded. *Seeds* linear-oblong, apterous.

Nearly allied to *Melanthium* with which it also partly agrees in habit, but the flowers are all hermaphrodite, and the panicle alternately branched.

Species. 1. Z. *glaberrimus*. 2. *elegans*. Pursh, Flor. Am. 1 p. 241. The only species of the genus.

345. VERATRUM. *L.* (Green and White Hellebore.)

Polygamous.—*Corolla* 6-parted, spreading, segments sessile and without glands. *Stamina* inserted upon the receptacle. *Capsules* 3 united, many seeded.

Root fibrous or branching; leaves ovate or elliptic, plaited, and numerously nerved, rarely (as in *V. angustifolium*) gramineous; flowers pyramidally paniculate, greenish.

Species. 1. *V. viride*. In the vicinity of Philadelphia, on the banks of the Schuylkill, but not common; growing nearly 6 feet high. Peduncles and branches of the panicle pubescent, upper part of the branchlets filiform with masculine flowers, the lower part fructiferous. 2. *parviflorum*. 3. *angustifolium*? Pursh, 1. p. 242. Raceme compound, lateral branchlets filiform masculine, upper part simple, hermaphrodite; petals sessile, linear-lanceolate, acuminate; leaves flattish gramineous, rather obtuse. *v. v.* Not uncommon in the grassy prairies of Ohio, Tennessee and Louisiana. 2 to 3 feet high, root bulbous! leaves linear, semiamplexicaule, rather arid, striated, 6 to 10 inches long; raceme long, with a few short filiform male branchlets on the lower part; male flowers nearly sessile, hermaphrodite pedicellate, bractes subulate, nearly the length of the pedicells; petals greenish white; subulately acuminated. Stamina very short in the male, in the hermaphrodite as long as the germ; styles distinct, 3, reflected. 4. *luteum*. *Helonias lutea*. Bot. Mag. 1062. but much more a *Veratrum* than an *Helonias*, as might be supposed by its being dioicous; and if the paucity of seeds is to be considered of importance in Helonias, this species with a capsule of many seeds may very well be restored to the genus with which Linnæus more properly associated it. The root is so far from being bulbous, that almost every one in the United States knows it by the improper name of "Devil's-bit," originally applied to a species of *Scabiosa*; the root is truly præmorse and very bitter, as is usual with this genus.

Of this genus there are two other species, indigenous to Europe and Siberia.

346. HELONIAS. *L.*

Corolla 6-parted, spreading; segments sessile and without glands. *Styles* 3, distinct. *Capsule* 3-celled, 3-horned, cells few-seeded, (seeds 1 or 2.)

Nearly allied to the preceding genus, but having the flowers all hermaphrodite; roots mostly fasciculated, sometimes solitary; leaves narrow, often gramineous and arid, surrounding the base of the stem; raceme simple.

Species. 1. H. *latifolia*, no where so common as the following. 2. *erythrosperma*. Bractes short and obtuse; capsule short and turgid, lobes divaricate; leaves caricine. 3. *angustifolia*. Leaves caricine, very long; scape obtusely angular, naked; bractes lanceolate, acute; germ acutely conic; styles contiguous. 4. *dubia*. 5. *pumila*. These two last species doubtful, as *Helonias*.

A North American genus.

347. XEROPHYLLUM. *Mich.*

Corolla subrotate. *Filaments* of the stamina contiguous at the base. *Stigmas* 3, revolute, partly united below. *Capsule* subglobose, opening at the summit by 3 chinks, 3-celled, cells 2-seeded.

Root partly bulbous, leaves arid and tenaceous, very narrow and numerous, surrounding the base of the scape; raceme simple.

Species. 1. X. *asphodeloides*. Hab. In New Jersey, and also very abundant on the summit of the Catawba ridge, North Carolina. The dilation of the filaments towards the base, the disposition of the styles, or rather stigmas, and the opening of the capsule by 3 external sutures in the centre of each cell, in place of the internal margins of the cells or capsules, are characters of much more importance than those which separate *Helonias* and *Veratrum*. 2. *tenax*. Pursh, 1. p. 243.—In the Northern Andes or Rocky Mountains. 3. *gramineum*, (*Helonias graminea*, Bot. Mag. 1599.)

A North American genus, somewhat allied to *Asphodelus*?

348. TOFIELDIA. *Hudson.*

Calix trifid. *Petals* 6. *Capsules* 3, superior, united at the base, many-seeded. *Seeds* naked, (angularly grooved?) *Styles* vertical, very short.

Roots aggregate, partly horizontal; leaves irideous; spike short and dense; pedicells solitary, minutely bracteate at the base.

Species. 1. T. * *glabra*, leaves equitant, irideous; scape terete, smooth; spike short, dense, and oblong, bractes acute, very small; peduncles solitary, angular, about the length of the flowers; petals oblong-ovate, subacute; styles none; capsules distinct, membranaceous, equal in length with the corolla.—Hab. In swamps near Wilmington, N. Carolina. Obs. Much more robust than *T. palustris*, and the scape not so far exceeding the leaves. Roots fasciculated horizontal; leaves linear, ensiform; scape 8 or 10 inches high, solid, rather thick than slender, nearly naked, or with a single leaf; spike 10 to 15 lines long; flowers crowded, numerous, (30 or more); bractes extremely minute; rachis excavated opposite the pedicells. Calicle 3-toothed. Petals greenish white, like those of *Helonias* in their form and disposition. Filaments of the stamina equal with the petals and germ, subulate, flat, and considerably dilated; anthers oblong, cleft at the base. Styles none; stigmas flat and circular, sessile. Capsules 3, distinct to the base, whitish, membranaceous, somewhat gibbously cymbiform, internal margins closed and bordered, points entire; 6 to 8 seeded. Seeds linear-oblong, a little curved, small and brownish-yellow, marked with 5 or 6 longitudinal and angular ridges.

§ II. * Triantha.† *Capsule* coriaceous, subglobose, trilocular, valves 3, bifid at the apex. *Styles* contiguous, persistent, spreading. *Anthers* compressed. *Seeds* very numerous, terete, caudate. (Nearly allied to *Narthecium*.)

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† From the flowers being aggregated upon the spike by 3s.

Roots horizontal, aggregate; leaves ensiform gramineous, arid; scapes naked, often pubescent and scabrous; spike lobed, flowers mostly aggregated by 3s.

2. *pusilla*. 3. *pubescens*. *v. v.* in Sussex county, Delaware. Obs. Petals greenish-white, linear-obovate, obtuse; scape scabrous and pulverulently pubescent; flowers aggregated in 3s, subtended by as many minute bractes; anthers roundish-cordate, flat, grayish-purple; capsule brown and indurated, margin of the valves inflected, seminiferous above, summits bifid. Seed caudate. 4. *glutinosa*. *v. v.* Abundant around Detroit, Michigan territory. Nearly allied to the preceding; but the petals are oblong-oval.

Of the genus *Tofieldia*, besides the above, there is 1 species in Europe and another in the Andes of Peru.—The section here denominated *Triantha* is unquestionably a genus distinct from the European *Tofieldia*, as well as from the plant of Carolina, *T. glabra*; it approaches to *Narthecium* by the seed, but the flowers are caliculate, and the filaments of the stamina smooth.

349. SCHEUCHZERIA. *L.*

Calix 6-parted. *Corolla* none. *Anthers* linear. *Stigmas* sessile, lateral. *Capsules* inflated, distinct, mostly 2-seeded. *Seeds* smooth, cylindric-ovate, with a longitudinal carinate suture, (black.)

A plant indigenous to sphagnose morasses, with somewhat horizontal roots, or a lateral mode of growth; leaves distichally sheathing, those of the infertile shoots very long and attenuated, convex and carinate; on fertile stems, short; sheaths distinct; flowering stem flexuose, frondose, numerously jointed; peduncles distant, solitary, sheathed; flowers greenish and inconspicuous.

Species. 1. S. *palustris*. *v. v.* In sphagnose cranberry swamps, New Jersey, near Philadelphia, plentiful, but I have not seen it in any other part of America. Obs. Leaves of the infertile shoots near 18 inches long, very narrow and linear. Roots loaded with persistent vestigiæ; raceme 5 to 7-flowered, lowest peduncles longest and subtended by sheathing leaves, which diminish upwards into short bractes. Capsules 3, oval, inflated, with compressed margins. Seeds almost uniformly 2 in each capsule, as large as those of Garden Balsam (*Impatiens chinensis*) black and shining, integument coriaceous; episperm white and membranaceous. Nucleus greenish, consisting of an ovate cylindric and homogenous somarhize, marked at its inferior extremity (or contiguous to the umbilicus) with an almost imperceptibly minute gemmule, in the form of a diaphanous point.

The only species of the genus, common to morasses in the north of Europe. From the singularly-isolated occurrence of this plant in the milder states of America, I am inclined to believe it on the decrease in such situations. In the turf morasses, or moors as they are called, in the northern parts of Yorkshire, (Craven) in England, I have commonly seen the singular vestiges of this plant inlayed through spongy or more recent turf, obtained where none of the plant exists at the present day.

350. TRIGLOCHIN. *L.* (Arrow-grass.)

Calix double, each 3-leaved, the interior more petaloid. _Corolla_ none. _Stamina_ 3 or 6. _Styles_ none; stigmas 3 or 6, pubescent. _Capsules_ 3 or 6, united above to a receptacular axis, separating at the base, each one-seeded, not spontaneously opening.

Marsh plants with fibrous roots and grassy sheathing leaves; scape naked, flowers spiked, numerous, inconspicuous; anthers sessile, disposed in 2 series of 3 each (at least in *T. maritimum*); stigmas 3 to 6.

SPECIES. 1. T. * *elatum*. Persistent styles and capsules 6; fruit angular; capsules linear, dorsally depressed, with acute margins; scape much longer than the leaves. HAB. In fresh, and probably also in salt-water marshes, in the state of New York. Certainly a very distinct species from *T. maritimum*, the fruit bearing no sort of resemblance. OBS. Scape about 2 feet high; leaves very narrow; stamina 6, in 2 series, each subtended by a calix of 3 leaves, maturing at different times. Spike nearly a foot long; fruit subcylindric, attenuated towards the persistent styles, 6-angled; capsules obtuse at the base, acutely compressed on the margins, and dorsally channelled, united above to a common persistent axis (similar to that which exists in umbelliferous plants), constantly 1-seeded, not spontaneously opening, though furnished with a distinct internal carinated suture. 2. *maritimum*. 3. *palustre*. Flowers triandrous, capsules linear. 4. *triandrum*. Fruit roundish.—In South Carolina.

Nos. 2 and 3 are indigenous to Europe as well as America; there is also 1 species at the Cape of Good Hope, and 2 of doubtful genus in Peru.

351. *GYROMIA.† MEDEOLA. *L.* (Indian Cucumber.)

Corolla 6-parted, revolute. *Calix* none. *Filaments* and anthers distinct. *Styles* none; stigmas 3, filiform and divaricate, united at the base. *Berry* 3-celled, cells 5 or 6-seeded. *Seeds* compressed, 3-sided.

Root an oblong fleshy tuber; stem simple, erect; leaves verticillated; flowers terminal aggregate.

SPECIES. 1. G. *virginica.* Called "Indian Cucumber" from a far fetched idea of resemblance either in the form or flavour of the root. Germ and berry always many-seeded, the latter dark purple when ripe; stigmas long, filiform, horizontally divaricated, almost imperceptibly glandular, and grooved on the upper side. Stem with a single sheath near the base, deciduously lanuginous. Leaves verticillated in the middle of the stem, 6 to 9, elliptic-lanceolate, acuminate; at the summit of the stem in 3s, very rarely and then unequally in 4s, oval-lanceolate. Flowers aggregated from 3 to 6.

β. **picta.* Floral leaves in 5s or 6s, oval acute, crimson-red near the base; flowers numerous, 9 to 12; berries tuberous, many-seeded, (12 to 15.)—HAB. On the shady banks of Laurel creek, near Morgantown, North Carolina. I have given it merely as a variety, not being in possession of satisfactory specimens, seeing it merely in fruit.

A North American genus, confining *Medeola* to the 2 African species which are said to have a berry of 3 seeds. The present genus, with a berry of 3 cells and many seeds, approaches consequently to *Trillium* and *Paris.*

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† From *γυρος, a circle,* in reference to its verticillated leaves; a habit which lead the celebrated A. L. Jussieu justly to doubt of its genuine affinity with the 2 African species of *Medeola* upon which the genus has been evidently founded, having a berry containing 3 cordate seeds. Changes of names, though doubtless unwelcome, must in these cases continue to be adopted, so long as we shall be inclined to prefer truth to error. Michaux has long ago asserted that the *Medeola asparagoides* did not belong to the same genus as *M. virginica,* without, however, pointing out a distinction.

352. TRILLUM. *L.* (American Herb Paris.)

Calix 3-leaved, spreading. *Corolla* of 3 petals. *Filaments* and terminal anthers adnate, opening on the inner side. *Styles* none. *Stigmas* 3, distinct, or approximate. *Berry* 3-celled, cells many-seeded.

Roots præmorsely tuberous, horizontal; scape low, 3-leaved, leaves verticillate, subtending a solitary peduncle, (or sessile flower in *T. sessile;*) petals white, or dark purple. Germ in one species styliferous; style 1.

Found generally in umbrageous forests attached to recent vegetable soil.

Species. 1. T. *sessile.* Flower sessile. Almost the only species in lower Louisiana. 2. *petiolatum.* Ph. Near the sources of the Columbia. 3. *erythrocarpum.* (*T. pictum,* Ph. 1. p. 244.) Petals undulated and recurved, having a crimson spot at the base of each. Hab. Subalpine, pretty constantly associated with evergreens, such as *Kalmia latifolia, Rhododendron maximum,* or *Abies canadensis,* and growing in their shade. 4. *ovatum.* Northern Andes. 5. *pusillum.* Petals nearly equal with the calix, leaves obtuse. 6. *cernuum.* Peduncle recurved, petals lanceolate, acuminated, leaves dilated. 7. *erectum.* Peduncle inclined; flower nutant; petals ovate acuminate, white or deep purple; leaves dilated. 8. *obovatum.* Ph. Peduncle erect, petals obovate, scarcely longer or broader than the calix; leaves sessile, rhombic-ovate acuminate. 9. *pendulum.* Peduncle inclined, flower pendulous, petals flat, ovate, shortly acuminate, nearly equal with the calix, which is ovate-acuminate; leaves roundish-rhomboidal, acuminate, subsessile. 10. *grandiflorum.* Petals large and very obtuse, much exceeding the calix, generally white, but varying with rosaceous flowers, and with the germ green or dark purple. Both this and the preceding are closely allied to *T. erectum.* 11. * *stylosum.* Plant small and slender; peduncle much shorter than the flower, recurved; petals undulated, spreading, larger than the calix, oblong, obtuse; germ styliferous, style 1, as long as the stigmas; leaves subpetiolate, elliptic-lanceolate, acute at both extremities. *T. cernuum,* Mich. Flor. Am. 1. p. 216. Hab. In the mountains of upper Carolina and Georgia. Obs. Scape attenuated upwards, becoming almost filiform, 8 or 10 inches high. Leaves about an inch wide, and 2 inches long. Peduncle rigidly recurved under the leaves, little more than half the length of the calix. Segments of the calix linear-oblong, somewhat obtuse and distinctly margined. Petals merely spreading, pale rose colour, undulated, obtuse, a little longer and nearly twice the breadth of the calix. Germ with a distinct solitary style, as in no other species of the genus, and 3 smoothish stigmas somewhat shorter than the style.

A North American genus, with the exception of *T. obovatum*, which grows also in Kamtschatka according to Pallas.

353. RUMEX. *L.* (Dock.)

Calix 6-parted, persistent, the 3 interior divisions petaloid, connivent. *Seed* 1, 3-sided, superior, naked. *Stigmata* multifid.

Flowers paniculate, terminal or axillary, mostly fasciculated; in many species the petaloid segments are externally glanduliferous. Some of the species are monoicous or dioicous.

Species. 1. R. *sanguineus*. 2. *crispus*. 3. *verticillatus*. 4. *britannicus*. 5. *persicarioides*. 6. *crispatulus*. 7. *obtusifolius*. 8 *aquaticus*. 9. *digynus*, (Sorrel). 10. *Acetosella* (Sheep's sorrel). Introduced; abundantly naturalized. 11. *venosus*. Ph. Flowers Hermaphrodite, valves very large, reniform-cordate, entire and without glands, red; leaves suboval-lanceolate, small. Hab. Near the confluence of the river Platte, on the sandy banks of the Missouri. Flowering in April. Stem scarcely a foot high. Flowers pendulous and fasciculated, valves about 5 lines wide. It differs sufficiently from *R. vesicarius* by having the petaloid valves only large; it is also perennial.

This extensive genus of more than 40 species is almost equally divided betwixt Europe and the temperate parts of Africa (Barbary, Egypt and the Cape of Good Hope.)

Order IV.—TETRAGYNIA.

354. SAURURUS. *L.* (Lizard's-tail.)

Flowers in an ament, or crowded spike, scales 1-flowered. *Corolla* none. *Filaments* and anthers adnate. *Capsules* 4, each 1 or rarely 2-seeded, not opening.

Stem leafy, many-spiked, leaves alternate cordate.

Species. 1. S. *cernuus*. A North American genus of a single species.

ORDER V.—HEXAGYNIA.

355. WENDLANDIA. *Willdenow.*

Calix 6-leaved. *Corolla* of 6 succulent? petals. *Styles* reclined. *Germs* 6. *Berries* each 1-seeded. *Seed* a compressed nut.

A climbing dioicous shrub; leaves alternate; racemes superaxillary. Scarcely distinct from *Menispermum*, with which it ought again to be compared.

SPECIES. 1. W. *caroliniana.* (*Menispermum corolinianum* of Walter and Michaux, Fl. Am. 2. p. 242.)

ORDER VI.—POLYGYNIA.

356. ALISMA. *L.* (Water-plantain.)

Calix 3-leaved. *Petals* 3. *Capsules* many, 1-seeded, not opening.

Aquatic plants with cordate, sagittate, ovate, or lanceolate leaves; panicle simple or compound, branches and branchlets ternately verticillated. (In *A. natans*, the leaves are elliptic, the peduncles 1-flowered opposite the leaves, and the fruit striated.) Nearly allied to, and scarcely distinct from *Sagittaria.*

SPECIES. 1. A. *Plantago.* 2. *natans*, PH. Both species also indigenous to Europe. There are of this genus also 3 other species in Europe, 2 in tropical America, and 1 in Guinea. Mr. Pursh's *A. trivialis* and *A. parviflora* appear to be only varieties of *A. Plantago.* For *A. subulata* see *Sagittaria.*

CLASS VII.—HEPTANDRIA.

ORDER I.—MONOGYNIA.

357. **TRIENTALIS.** *L. Tournf.* (Chickweed Wintergreen.)

Calix 7-leaved. *Corolla* 7-parted, equal, flat. *Berry* 1-celled, juiceless. *Seeds* many. (*Stamina* 5, 6, 7 and 8.)

Flower varying in the number of its parts. Stem simple, low; leaves collected at the summit of the stem; peduncles terminal, aggregated, 1-flowered.

SPECIES. 1. T. *europæa, β. americana.* Leaves lanceolate, acuminate. OBS. The leaves of the American plant, on comparison, are longer, the flowers more frequently 8-parted with 8 stamens than less, it consequently approaches to the genus *Chlora.*

A genus of a single species, indigenous to Europe and North America.

358. **ÆSCULUS.** *L.* (Horse-chesnut. Buck-eye.)

Calix 1-leaved, ventricose. *Corolla* of 4 or 5 unequal pubescent petals inserted upon the calix. *Capsule* 3-celled. *Seeds* large, resembling chesnuts.

Trees or rarely shrubs with digitate leaves; flowers racemose and terminal, articulated upon the rachis.

SPECIES. 1. Æ. *Pavia.* Indigenous also to Brazil. 2. *discolor,* PH. 3. *flava.* 4. *glabra.* 5. *pallida.* 6. *macrostachya.* The smallest and most ornamental of the American species.

A North American genus with the exception of *Æ. Hippocastanum* of northern Asia.

Class VIII.—OCTANDRIA.

Order I.—MONOGYNIA.

† *Germ inferior.*

359. RHEXIA. *L.*

Calix urceolate, 4 to 5-cleft. *Petals* 4, oblique, inserted upon the calix. *Anthers* declinate. *Capsule* setigerous, 4-celled, included in the ventricose calix. *Receptacles* subulate. *Seeds* numerous. (Stamina sometimes 10.)

Annual or perennial, rarely suffruticose; stems mostly quadrangular; leaves very entire, longitudinally nerved, opposite; flowers by 3s, dichotomal and terminal, often trichotomously compounded and subcorymbose or glomerate, rarely, if ever, axillary, by defection sometimes solitary and terminal; petals primarily convolute in a cone, caducous, violaceous or purple, rarely yellow.—Anthers very long and curved, at first deflected and equally arranged round the tube of the calix, 1-celled, adnate to the filaments, emitting the pollen by a single clandestine pore, situated at the junction with the filament, the pore guarded by a single seta. Seeds subreniform and angular.

Species. 1. R. *mariana*. Stem subterete, hirsute. ⊙. 2. *virginica*. Stem with alated angles, nearly smooth. 3. *ciliosa*. Stem subquadrangular, smooth; leaves small, subpetiolate, oval-acute, beneath smooth, a little hairy above, margin conspicuously ciliated; flowers conglomerated by 3s, sessile, involucrate, anthers short; calix acute, fruiting base subglobose, smooth. Pursh, Fl. Am. 1. t. 10. A very imperfect specimen. Pluk. Amalth. p. 138. t. 425. f. 4.

4. * *serrulata*. Stem quadrangular, smooth; leaves small, subpetiolate, roundish-oval, acute, smooth on both sides, margin serrulate, base subciliate; flowers pedunculate, very large, growing by 3s; calix glandularly hirsute, border very short and obtuse. Hab. In the open swamps of Georgia and Florida, communicated to me by Dr. Baldwyn, who considered it as a dwarf variety of the preceding, to

which it is nearly allied, but cannot possibly be the same species, being by the calix much more nearly related to *R. glabella*, but the leaves, habit, and angular stem, separate it from that species; in *R. ciliosa* the border of the calix is remarkably large, the segments expanding nearly to the length of the ventricose base, and not coalescing into a tube as is usual in this genus. OBS. About 6 to 10 inches high; leaves nearly as broad as long, about 5 lines; regularly and mucronulately serrulate, the radical leaves nearly round, and with the margins more entire; flower purple, as large as that of *R. glabella*, solitary and terminal, or simply in 3s; never subcorymbose.

5. *glabella*. The largest and most ornamental of the species indigenous to the United States. Stem nearly cylindric, and very smooth, as well as the whole plant, with the exception of the calix; leaves lanceolate, sessile, and entire; calix glandularly hirsute, border minute, flowers subcorymbose. Root tuberous, perpendicular, and very large, with a spongy bark, stems 2 to 3 feet high, and considerably branched. 6. *stricta*, PH. Apparently a variety of *R. glabella*.

7. *lutea*. Every where glandularly pilose, but particularly the stem, which is obtusely quadrangular; lower leaves oblong-obtuse, the upper much smaller and acute; calix funnelform, with a conspicuous and acute border; petals yellow, rather small, as well as the stamina, which are erect. OBS. Root perennial, fibrous. Stem about 12 inches, quadrangular, branchlets approximating towards the summit of the stem, 1 and rarely 3-flowered, petals oval and obtuse; flowers about the size of *Œnothera sinuata*.

8. *linearifolia*. Stem cylindric pubescent, leaves alternate, linear-oblong, obtuse, sessile, every where pubescent; flowers solitary.—Lamark, Encycl. 6. p. 2. In Carolina. *Bosc.* Flowers yellow. A variety of the preceding?

9. * *angustifolia*. Stem subterete, hirsute, leaves linear-lanceolate, somewhat oblong, hirsute, axills foliose; flowers cymose, cyme bifid; calix cylindric, short, and very smooth. Stamina declinate. *R. lanceolata*, Walter. *R. mariana*, γ. *exalbida*, Mich. Flor. Am. 1. p. 221. HAB. Around Savannah, in Georgia, also in Carolina. OBS. Stem one and a half to two feet high, leaves numerous and narrow, scarcely 3-nerved, subpetiolate; flowers constantly disposed in a naked, bifid cyme, never in a trichotomous panicle as in *R. mariana;* calix very smooth; in *R. mariana* twice as long and hairy; flowers smaller, nearly white.

This genus of about 30 species, excepting the above, is exclusively indigenous to the tropical parts of America.

360. ŒNOTHERA. *L.* (Tree-primrose.)

Calix tubulous; 4-cleft, segments deflected, deciduous. *Petals* 4, inserted upon the calix. *Stigma* 4-cleft. *Capsule* 4-celled, 4-valved, inferior. *Seeds* naked, affixed to a central 4-sided receptacle.

Herbaceous, biennial, annual and perennial; leaves alternate; flowers solitary, axillary, at length elongated into a spike, generally yellow, rarely white or violaceous, expanding about sun-set. (Leaves in most of the species, when sufficiently diaphanous, linearly punctate.)

§ 1. *Fruit elongated, sessile.*

SPECIES. 1. Œ. *biennis.* (Tree-Primrose.) *v. v.* On the banks of the Missouri up to Fort Mandan; the flowers are, however, smaller than usual, and the leaves somewhat glaucous. 2. *muricata.* 3. *parviflora.* 4. *grandiflora.* 5. *sinuata, β. minima,* PH. A mere variety of this species, and not uncommon in New-Jersey.

6. * *humifusa.* Stem prostrate, branching, villous; leaves linear-lanceolate, subdentate or entire, silky villous as well as the calix; flowers axillary; tube of the calix a little longer than the germ; petals obcordate about the length of the anthers; capsule prismatic. HAB. Near Cumberland island, Florida, on the sea-coast.—Dr. Baldwyn. Resembles Œ. *sinuata* somewhat in general habit; but is soft and silky, not hairy as that species; the flowers also seem to have been white; the leaves are an inch long and scarcely two lines wide, irregularly and remotely toothed, lower leaves apparently always entire; flowers small.

7. * *albicaulis.* Perennial; stem simple, erect, white and polished, upper part branching; leaves linear-sublanceolate, rarely subserrulate, under side a little villous; flowers axillary, middle-sized, white; capsule prismatic; petals entire.—Œ. *albicaulis.* Fras. Catal. 1813. Pursh's synonym wrong, 2. p. 734. See the Herbarium of A. B. Lambert, esq. HAB. From the river Platte to the Northern Andes. Flowering in July and August. Stem about 3 feet high, calix somewhat villous; capsule about an inch long.

8. * *pinnatifida.* Minutely pubescent; stem low and decumbent; radical leaves nearly entire, stem leaves pinnatifid, segments linear and acute; flowers few, axillary, large and white; petals obcordate and dilated, much longer than the stamina; style filiform, very slender, stigmas filiform and divaricate as long as the anthers; cap-

sule prismatic, grooved.—Œ. *albicaulis*, Pursh, Flor. Am. 2. p. 734. Allied to Œ. *tetraptera*, but very different in the capsule and style. Hab. On the banks of the Missouri near White river, in denudated argillaceous tracts. Annual, and flowering in May and June. Flowers large and white, becoming reddish on withering. In arid situations not more than 4 or 6 inches high, in other places 1 or 2 feet, but always decumbent; tube of the calix longer than the germ; capsule an inch long, not more than a line and a half wide, quadrangular, and slightly margined.

9. * *cæspitosa*. Cespitose and stemless; leaves lanceolate, sinuately or repandly toothed, smooth, petals very large, dilatedly subbilobed; tube of the calix very long; capsule subconic-oblong, sessile, margin of the valves cristately muricate. Hab. On denudated and arid argillaceous hills on the banks of the Missouri, from White river to the Mandans, and in all probability to the commencement of the mountains. Obs. Segments of the calix carinate, appearing prismatic before flowering; seeds cylindric-ovate; plant 3 or 4 inches high, tube of the calix two and a half inches, flower often 3 inches in diameter. This species is considerably allied to Œ. *acaulis*, which produces pinnatifid leaves and alated capsules, in this the leaves are entire, and the capsules considerable like those of Œ. *biennis*, cylindric-conic, and tuberculately crested along the margins of the valves; the flowers are white, of uncommon magnitude, and become tinged with red in withering: where its duration is long continued it produces numerous cespitose tufts, but from appearances of this kind its existence is seldom continued through more than 5 or 7 years.

10. * *serrulata*. Stem low, slender and suffruticose, minutely pubescent, as well as the under side of the leaves and capsules; leaves oblong-linear, irregularly serrulate; flowers distant, axillary; calix sessile, angular, funnelform; capsule prismatic, slender; petals roundish, entire; stamina and style very short; stigma almost undivided, 4-toothed. Hab. From the river Platte to the mountains, on dry hills; flowering in June. Somewhat allied to Œ. *dentata*, but appears very different on inspecting the figure of that species in the Flora Peruviana. Obs. Stem simple, slender, 8 to 12 inches high, foliose; leaves a little more than an inch long, 2 to 3 lines wide, attenuated downwards, distinctly serrulate, not toothed; flowers a little larger than those of Œ. *sinuata*, bright yellow; calix quadrangular, sessile, funnelform, segments ovate, and carinate, stamina and style scarcely exserted beyond the calix; germ hoary and pubescent; capsule quadrangular, closely ses-

sile, more than an inch long, about half a line wide; seeds naked. This species, in every respect but the seed, makes a near approach to *Epilobium*.

§ II. *Capsules ventricose, angular, mostly pedicellate.*

11. *glauca*. Leaves broad-oval, very smooth and glaucous.

12. *fruticosa*. Partly villous; leaves linear-lanceolate, subdenticulate, acute; petals obcordate, as broad as long; calix acuminate; capsule quadrangular, pubescent, oblong-clavate, pedicellate; raceme naked below. *Bot. Magaz* 332. Stem simple, leaves when held betwixt the light, punctate (through a common lens,) punctures very numerous and linear, similar to those of *Lysimachia quadrifolia*, but colourless and diaphanous.

β. * *ambigua* more or less pilose; stem simple; leaves lanceolate, or ovate-lanceolate, acute, subdenticulate, petals obcordate, longer than broad; points of the calix very short; capsule subsessile, always smooth, oblong, and 4-winged; raceme naked below. **Hab.** Common around Philadelphia with the preceding; apperently a distinct species. Stem simple, leaves linearly punctate (through a lens,) stem more slender, flowers smaller and usually of a brighter yellow. In dry and exposed situations, this species, if such it may be considered, becomes very hairy, in wet places often perfectly smooth.—My attention has been directed to these discriminations through the politeness of professor Barton.

13. * *incana*. Stem low, slender, and erect; leaves flat, hoary and tomentose, very entire, elliptic-ovate, acute; raceme few-flowered, naked, capsules subsessile, oblong and quadrangular. **Hab.** In dry woods, Maryland.—Dr. W. C. Barton. *v. s.* in Herb. Barton. Stem 6 or 8 inches high, flowers bright yellow. Allied to *Œ. frusticosa*, *β*. *ambigua*.

14. *Fraseri*, **Ph.** 15. *pumila*.

16. **riparia*. Nearly smooth; stem erect and virgately branched; leaves linear-lanceolate acute, distantly subdenticulate, flat and rather thick; capsules spiked, distinctly stipitate, obovate, 8-grooved, valves dorsally ridged. **Hab.** on the banks of Cape Fear river, Wilmington, North Carolina, in situations subject to inundation; often attached to drift-wood. **Obs.** Biennial. Stem about 2 feet high, much branched above, almost entirely smooth, except in an early state, branches brown. Root leaves lanceolate, distantly denticulate, as are also those of the stem, smooth and lucid, rather thick; stem leaves attenuated at both extremities, linear-lanceolate, almost imperceptibly and glandularly denticulate, a little perbescent on the margin, opaque betwixt the light, two to two and a half inches

long, only 2 or 3 lines wide; flowers produced towards the summits of the branches, yellow, capsules racemose octangular; margins alated, dorsal angles obtuse, corrugate; dissepiments very thin and membranaceous; stipe a little shorter than the fruit; racemes 4 to 6 inches long.

17. *hybrida*. 18. *linearis*. Obs. Root ligneous, stem slender, flexuose, rarely exceeding a span, often branched, the whole plant conspicuously pubescent; leaves linear, somewhat oblong; radical leaves spathulate-oval; flowers bright yellow nearly the size of those of *Œ. fruticosa*, for a dwarf variety of which it might almost be mistaken; tube of the calix much longer than the germ; capsules subcorymbose or terminal, very few, roundish-obovate, with 8 grooves, usually shorter than the stipe. Hab. From Virginia to Georgia, in open low and sandy woods. 19. *chrysantha*. 20. *pusilla*. probably a variety of *Œ. linearis*, the capsules of which are sometimes nearly sessile, and the fruit of this is described as clavate.

21. * *alata*. *Œ. macrocarpa*. Ph. Obs. Root perennial, perpendicular, caudex dividing into several simple and decumbent stems, 6 to 12 inches long. Leaves linear-lanceolate acute, upon long petioles, in an early state minutely villous and hoary, margin sometimes distantly and glandularly denticulate, always pubescent as well as the nerves, opaque betwixt the light, 5 or 6 inches long and about half an inch wide. Flowers sessile, produced below the summit of the stem, axillary; tube of the calix 3 or 4 inches long, (and by cultivation, at the expense of the germ, 6 or 7 inches!) segments of the calix sublanceolate, acuminate, flat, externally spotted with purple, and covered with a short silky villus; petals very large, obcordately dilated, nearly entire. Pollen triangular, connecting at its angles by a fine web of arachnoid filaments. Stigma 4-lobed. Capsule oval, of extraordinary magnitude, compressed, coriaceous and shining, producing 4 very broad alated margins, but without any intermediate dorsal ridges, as is usual in this section of the genus, there is consequently no dissepiments, the separation of the 4 cells being produced by the dorsal depression. Seeds gibbous and corrugate, with a lacunose margined depression, disposed in 2 rows in each cell; length of the capsule about 2 inches, breadth one and a half! This splendid and singular species appears to indicate the existence of some distinct and proximate genus. Hab. On the elevated summits of the calcareous and petrosiliceous hills in the vicinity of the lead-mines of the river Meremeck, 30 miles from St. Louis, Louisiana. Discovered by Mr. J. Brad-

bury, F. L. S. Flower by cultivation nearly 6 inches in diameter, and the leaves then become lanceolate.

An American genus, extending through Peru and Chili into Patagonia, with the exception of 2 species at the Cape of Good Hope.

361. CLARKIA. *Pursh.*

Calix 4-cleft, tubulous. *Corolla* of 4 petals, unguiculate, cruciately 3-lobed. *Stamina* 4 imperfect, with roundish anthers. *Stigma* petaloid, 4-lobed. *Capsule* 4-celled.

A biennial or annual and herbaceous plant, with the entire habit of *Œnothera*. Leaves alternate, narrow; flowers alternate, subsessile, purple.

Species. 1. C. *pulchella.* *v. s.* Discovered in Northern California by the late governor Lewis, on the banks of two of the principal branches of the Columbia.

362. GAURA. *L.*

Calix 4-cleft, tubular. *Corolla* of 4 petals, ascending towards the upper side. *Nut* quadranlar, 1 to 4-seeded.

Habit similar to *Œnothera*, to the last section of which it closely approaches. Leaves alternate, flowers spiked, mostly rosaceous. Germ 4 or more seeded; capsule by abortion 1-seeded. (Leaves impunctate.)

Species. 1. G. *biennis.* 2. *angustifolia.* 3. * *coccinea.* Perennial; stems simple, decumbent, several from the same root; leaves linear-lanceolate, repandly denticulate, canescent and partly villous; raceme lax, many-flowered, petals roundish, filiformly unguiculate, a little longer than the calix; stigma 4-toothed; fruit acute at both extremities, 4-seeded. Hab. On the declivities of bare gravelly hills, from the Maha village to the Mandans. About a foot high, covered with a short and hoary villous pubescence, leaves crowded; flowers at first rose colour, at length becoming pale scarlet. Flowering in May.

Of this genus there are 2 other species in Mexico and 1 in tropical America.

363. EPILOBIUM. *L.* (Willow-herb.)

Calix 4-cleft, tubulous. *Corolla* of 4 petals. *Capsule* oblong inferior. *Seeds* comose.

Herbaceous; leaves opposite or alternate; flowers reddish, towards the summit of the stem, solitary and axillary, or in terminal bracteate spikes: stamina in a few species declinate.

Species. 1. E. *spicatum*. Commonly called *E. angustifolium*, but the leaves are comparatively more broad than narrow. 2. *latifolium*. 3. *luteum*, Ph. 4. *tetragonum*. 5. * *squamatum*. Subcanescently pubescent; root squamose, bulbous; stem terete, branching above; stem leaves opposite, those of the branches alternate, linear and entire, revolute on the margin; flowers pedunculate; petals bifid; stamina unequal; stigma clavate undivided. Hab. In wet meadows, common around Philadelphia. *E. rosmarinifolium*. Pursh, Flor. Am. 1. p. 259. but this name has been already applied by Haenke to a very different species. Obs. Root in winter an imbricated squamose bulb, with succulent reddish scales! Stem about 1 foot high, slender; flowers small, few and terminal; petals small, white, and veined, bilobed, longer than the calix; stamina unequal, 4 shorter opposite the petals, and 4 longer alternating with them; capsule very long, 4-sided. 6. *coloratum*. Leaves with linear and *round* diaphanous punctures (through a lens) after the manner of *Œnothera*, excepting that the punctures are of *two* forms. 7. *palustre*. 8. *alpinum*. Probably *E. oliganthum*. Mich. 1. p. 223.

A genus principally indigenous to the north of Europe, extending as far as Greenland; there is also 1 species in Chili, 2 in New-Zealand, and 1 at the Cape of Good Hope. Have not all the species indigenous to the colder regions roots which assume the form of bulbs in winter?

364. OXYCOCCUS. *Persoon.* (Cranberry.)

Calix superior, 4-toothed. *Corolla* 4-parted; segments sublinear, revolute. *Filaments* connivent. *Anthers* tubulose, semibifid. *Berry* many-seeded.

Small prostrate creeping shrubs with evergreen leaves, growing in sphagnose morasses; branches filiform, proliferous; flowers produced at the base of the vernal ramuli, in short gemmaceous racemes, peduncles conspicuous bibracteate; berries red, or rarely white, acid.

Species. 1. O. *macrocarpus*. Obs. Repent; leaves oval-oblong, nearly flat and obtuse, distantly subserrulate, under side somewhat glaucous, younger ones pubescent at the points; segments of the corolla linear-lanceolate.—Branches sometimes flexuose and adscendent, serrulations of the leaves about 4, points of the younger leaves, peduncles and the margin of the calix and bractes pubescent; flower-bearing branches proliferous and erect, the rest becoming prostrate and radicant; pedicells bibracteate, bractes acute. Berries immaculate red and spherical, often persistent throughout the winter. HAB. In sphagnose swamps or overgrown ponds, from Labrador to Carolina.—The fruit an article of commerce as well as domestic consumption.

2. *hispidulus*, *Vaccinium hispidulum*, Mich. 1. p. 228. tab. 23. Willd. Sp. pl. 2. p. 355. *Gaultheria Serpyllifolia*, Pursh, 1. p. 283. The whole habit of this singular plant, as well as its being octandrous, is certainly in favour of this genus, rather than *Gaultheria*, although it possesses occult qualities similar to *G. procumbens*, having the same aromatic taste and smell. The berries of this species are small, white, and produced in very inconsiderable quantities, they are aromatic, not very acid, and rather insipid than agreeable, certainly not "very sweet." HAB. I have observed this plant north-westward as far as the outlet of lake Michigan, and as Mr. Pursh very justly remarks, abounding where evergreens are predominant, keeping pretty constant pace with the boreal forests of Pines, Larches and Firs. It is not uncommon on the mountains of Pennsylvania, growing always amidst Sphagnum. 3. *erythrocarpus*. *Vaccinium erythrocarpum*. Mich. 1. p. 227.

A North American genus, with the exception of *O. europaeus:* (*Vaccinium Oxycoccus*, Willd.) which has not, I believe, yet been found in America.

†† *Germ superior.*

365. MENZIESIA. *Smith.*

Calix of 1 leaf. *Corolla* monopetalous, ovate. *Filaments* inserted upon the receptacle. *Capsule* superior, 4-celled, dissepiments produced by the inflected margins of the valves. *Seeds* numerous, oblong.

An heteromorphous genus, *M. ferruginea* and *M. globularis* possessing the habit and fruit of *Azalea*, but the flowers of *Andromeda;* the flowers and ciliated oblanceolate leaves terminally fasciculated;—*M. empetriformis*, *M. caerulea* with decandrous flowers, and *M. polifolia*, having leafy stems, linear or minute leaves with revolute margins and conspicuous red flowers, are scarcely distinct from *Erica*.

Species. 1. M. *ferruginea.* In North California. 2. *globularis?* Obs. Branches subverticillate. Leaves obovate-lanceolate, acute, petioles and margin as well as the younger branches pilose, under side of the leaf glaucous, covered with a minute pubescence, upper side somewhat scabrous; under side of the midrib lined with about eight to ten distant tubercles, each terminated by an appressed paleaceous process, and respectively situated near the base of each pair of lateral nerves. Flowers terminally fasciculated, peduncles glandularly pubescent, an inch and a half long. Calix crenate, minute, crenatures 4, ciliate, retuse. Capsule cylindric-ovate, short, 4-valved, coriaceous, receptacle with 4 alated angles, each angle seminiferous and embraced by the 2 inflected margins of each valve. Seeds minute, linear-oblong, acute. 3. *empetriformis.* 4. *cærulea.* These 2 last resemble *Erica.* No. 4. was the *Erica cærulea* of Willdenow.—There is but another genuine species of this genus, which is the *M. polifolia* of Jussieu, in the north of Europe, almost peculiar to the mountains of the west of Ireland, extending also into France and Portugal.

366. ACER. *L.* (Maple.)

Flowers mostly polygamous.—*Calix* about 5-cleft. *Petals* 5, or none. *Samaræ* 2, sometimes 3, alated, united at the base, by abortion 1-seeded.

Large or small trees; leaves palmately lobed (in *A. Negundo,* simply or doubly pseudo ternate); flowers lateral and terminal, subcorymbose, racemose, or aggregate, and then subtended by an imbricated gemmaceous involucrum, with the pedicells 1-flowered. Calix sometimes petaloid.

Species. 1. A. *rubrum.* Obs. Dioicous; calix petaloid red, 8 to 12 parted; stamens about 5, in the male exserted, having a globular gland at the base of each; segments of the hermaphrodite calix shorter and broader, stamens also shorter. Styles 2, long, recurved and pubescent on the upper surface. Flowers aggregated in 5s, surrounded by a gemmaceous involucrum. 2. *dasycarpum.* Obs. Dioicous; hermaphrodite calix membranaceous, nearly entire, or with 5 crenatures; petals none; stamina mostly 5, rarely 4 or 6. Germ lanuginous, 4-seeded; no glands at the base of the corolla or germ, as in *A. rubrum;* gemmaceous clusters about 5-flowered, internal base of the involucrum woolly. Hab. Westward into Upper Louisiana.—These 2, and several others, are scarcely congeners with the

European maple. 3. *barbatum.* 4. *saccharinum.* (Sugar-maple.) 5. *nigrum.* Scarcely distinct from the preceding. Confined almost exclusively to the west side of the mountains. 6. *macrophyllum,* Ph. *v. s.* Somewhat resembling *A. Pseudoplatanus.* 7. *circinatum,* Ph. Both indigenous to North California, on Columbia river. 8. *striatum.* Persoon, 1. p. 417. Pursh, 1. p. 267. Obs. Racemes pendulous. Calix 5-cleft, petals 5, oblong; stamina 8, anthers pale, oval, small. This is certainly a correct type of the genus, as well as the following. 9. *montanum.*

Negundo. Dioicous.—Calix minute, 5-toothed. Petals none. Male, with 5 stamina, anthers linear, sessile, and acuminate. *Sumaræ* similar to Acer.

A tree, with pseudoternate or imperfectly biternated leaves (something like those of *Fraxinus*), racemes aggregated, filiform.

10. **Fraxinifolium.* Hab. North-westward on the banks of the Missouri to the mountains?

Of this genus there are 5 species on the continent of Europe, 1 in the isle of Crete, which is evergreen, with leaves like *Anemone hepatica,* 1 in Tartary, and 6 in Japan.

367. DIRCA. *L.* (Leather-wood.)

Calix none. *Corolla* tubulous, border obsolete. *Stamina* unequal, exserted. *Style* filiform. *Berry* 1-seeded.

A low shrub, virgately branched; bark tenaceous; buds 3-flowered, axillary; flowers small, pale yellow.

Species. 1. D. *palustris.* The only species of the genus.

368. JEFFERSONIA. *Barton.*

Calix 5-leaved, coloured, deciduous. *Corolla* of 8 petals, incurvately spreading. *Stamina* receptacular. *Capsule* obovate, substipitate, 1-celled, opening below the summit by a lunate foramen. *Seeds* many, oblong, arillate at the base.

Stemless; leaves binate; scapes naked, 1-flowered; flowers caducous, white. Natural order *Papaveraceæ.*

Species. 1. J. *diphylla.* The only species of the genus.

ORDER II.—DIGYNIA.

369. CHRYSOSPLENIUM. *L.* (Golden Saxifrage.)

***Calix* superior 4 or 5-cleft, coloured. *Corolla* none. *Capsule* birostrate, 1-celled, many-seeded.**

Herbaceous, subaquatic, leaves simple, thickish, opposite or alternate; flowers small sessile, often terminal and surrounded with floral leaves, mostly 4-cleft and octandrous, the primary flower sometimes decandrous.

SPECIES. 1. C. *oppositifolium*. OBS. Leaves both opposite and alternate. Stamina seated in the indentions of the margined and sinuated receptacle, indentions 8.—A genus probably of a single species indigenous to Europe and America.

ORDER III.—TRIGYNIA.

370. POLYGONUM. *L.* (Persicaria, Buckwheat, &c.)

***Calix* 5-parted, petaloid, persistent. *Seed* 1, superior, 3-sided, covered by the connivent calix. (The number of the stamina and styles uncertain.)**

A polymorphous and divided genus? nearly all the species herbaceous; leaves alternate; linear, spathulate, lanceolate, ovate, cordate or sagittate, sheathing at the base, sheathes or ochreæ cylindric, embracing the stem; flowers axillary, or spiked, in a few species disposed in paniculated racemes, color reddish or white. Peduncles articulated, as in *Eriogonum* and perhaps in other genera of *Polygoneæ*? Stems and branches, often nodose, but inarticulate.

§ I. *Ochreæ, manyflowered,* (3—5.)

SPECIES. 1. P. *aviculare*, flowers octandrous, styles 3, peduncles shorter than the flowers, seeds granulated. α. *angustifolium*. Mich. 1, p. 237, leaves small, lanceolate-oblong, acute. β. *latifolium*, leaves broad oval, obtuse, flowers pentandrous, stem adscendent. 2. **glaucum* Flowers octandrous, styles 3; stem diffuse, prostrate, leaves ovate-lanceolate, thick and glaucous; pedicells as long as the flowers; seeds acuteangular, acuminate, even, and shining. HAB. On the sandy beach of the sea, around Egg-Harbour, New Jersey; possesses much the aspect of *P. aviculare*, but produces flowers which are conspicuous and elegant, and occurs in situations which pronounce it native; not naturalized as *aviculare*, the seed is also remarkably distinct. *A. maritimum* of Europe has never yet been found on the American sea-coast. OBS. The whole plant glaucous, very diffuse, branches with numerous nodes, stipules lacerate, 3 to 5-flowered, flowers white and exserted, segments obtuse; filaments of the stamina very short and dilated. 3. *ramosissimum*. 4. *tenue*. 5. *Hydropiperoides*. 6. *mite*. 7. *hirsutum*. The whole plant hirsutely pubescent; leaves lanceolate. 8. *virginianum*. 9. *bistortoides*. PH. This species is probably a variety of *bistorta*. 10. *viviparum*. 11. *coccineum*. Sparingly met with in the vicinity of Philadelphia. 12. *pensylvanicum*. 13. *Persicaria*. 14 *orientale*. Partly naturalized.

—*Leaves sagittate or cordate.*

15. *sagittatum*. 16. *arifolium*. 17. *Fagopyrum*. Buckwheat, merely cultivated, not naturalized. 18. *Convolvulus*. Introduced. 19. *cilinode*. 20. *scandens*.

§ II. POLYGONELLA. Calix 5-leaved. *Ochrea 1-flowered; racemes dichotomously paniculate*; leaves spathulate, small, (flowers often dioicous.)—Stamens 8. Stigmas 3, subcapitate.

21. *articulatum*. Annual; flowers hermaphrodite, nutant, as long as the capillary peduncles; peduncle articulated near its base; fruit acute-angled, as long as the spreading calix; flowering stems nearly naked; leaves spathulate-linear obtuse. HAB. Canada to Virginia, in sandy and barren soil: also on the banks of Fox River and Lake Michigan (Michigan Territory.) A very elegant species with spreading rosaceous flowers, sometimes white. OBS. Stem about a foot, in flower mostly naked, much branched, branches erect, copiously floriferous. Flowers spreading and obtuse, anthers purple; styles none; stigmas 3, subcapitate as in the 2 following species; ochreæ of the flowers truncate, unidentate also as in the 2 following, but larger.

22. * *gracile*, Dioicous: glaucous, annual; racemes very slender, filiform; flowers deflected, at first minute, much longer than the peduncles; peduncle articulated to the calix; fruit acuminated longer than the connivent calix; flowering stems nearly naked; leaves spathulate-linear, obtuse. HAB. In Georgia? *Dr. Baldwyn*. Very similar to the preceding in habit, although a very distinct species, about a foot high, much less branched than *P. articulatum*, branches very slender, somewhat spreading, coming out above the ochreæ, perfectly lateral, uncom-

panied by nodes. Leaves very few, small and distant, racemes as in the 2 other species dichotomous. Flowers greenish white, at first minute, gradually augmenting in the fruit after the manner of *Rumex*; segments unequal, the larger oblong-ovate, the 2 smaller often horizontal in fruit.

23. *parvifolia*. Dioicous; stem shrubby; much branched, leaves cuneate-linear, or spathulate-obovate, retuse, tortuously-spreading; racemes spreading, very numerous, peduncle minute, articulated with the calix; the 2 smaller divisions of the calix reflected in the fruit; fruit included. Hab. On the sand-hills of Lynch creek, and around Wilmington, North Carolina, abundant. Obs. A small shrub, about the size and form of *Erica vulgaris*, rarely ever 2 feet high; branches brittle, brown, covered with the vestiges of rejected stipules, innumerably branched; leaves almost imbricately approximating and tortuous, variable in breadth, opaque; flowers minute.

The principal part of this genus, excepting the above, is indigenous to Europe, and extending into Siberia (Asia). There are also a few species in the East Indies, Japan, China and New Holland.

371. BRUNICHIA. *Gœrtner.*

Calix at length coriaceous, tubular and ventricose, 5-cleft, angular at the base, and decurrent in the dilated peduncle. *Corolla* none. *Styles* short; stigmas bifid. *Seed* 1, triquetrous, inclosed by the calix. *Perisperm* lobed. (Stamina 8 or 9, rarely 10).

A climbing shrub with alternate, cordate, acuminated leaves; racemes, paniculated, bractes many flowered; calix enlarging and becoming suberose, elongated into a flat and arched, peduncle, attenuated and articulated at its base, deciduous at the articulation after the manner of the whole order of Polygoneæ? The stem and leaves inarticulate. Embryon inverted.

Species. B. *cirrhosa*. The only species indigenous to Georgia, Florida, and the Bahama islands.

372. CARDIOSPERMUM. *L.* (Heart-seed.)

Calix 4-leaved. *Petals* 4. *Lepanthium* 4-leaved, unequal. *Capsule* membranaceous, inflated, 3-lobed, 3-celled. *Seeds* round, marked at the hilum with a heart-shaped spot.

Herbaceous climbers; leaves biternately divided; peduncles long, solitary, and axillary, producing 2 tendrils below the summit, and terminating in a many-flowered corymb.

Species. C. *Halicacabum.* A doubtful native, but indigenous to India.

A small tropical genus of 4 species, 2 others in America, and 1 in Guinea.

373. SAPINDUS. (Soap-berry.)

Calix 4-leaved. *Petals* 4, glandulous at the base. *Capsules* 3, carnose, connate, and ventricose, 2 of them often abortive. *Seed* spherical.

Trees; with pinnated leaves; flowers paniculated terminal and axillary.

Species. S. *Saponaria.* Fruit globose, terebinthinaceous.—Hab. Sea-coast of Georgia.

A tropical genus of 10 species, 5 indigenous to America, and 5 to India.

CLASS IX.—ENNEANDRIA.

ORDER I.—MONOGYNIA.

374. LAURUS. *L.* (Spicewood, Sassafras, &c.)
Calix mostly 6-parted. *Nectarium* consisting of 3, bisetose glands, surrounding the germ. *Filaments* 12, 6 interior, 3 of them sterile and glanduliferous. *Berry* 1-seeded. (Stamina variable in number. Flowers often dioicous.)

Small trees or shrubs with, entire, and sempervirent leaves, in some species partly opposite and longitudinally nerved; flowers paniculate or racemose axillary and terminal, (a few species have solitary flowers, but are not probably of this genus.)

SPECIES. 1. L. *Catesbæi.* 2. *carolinensis.* Flowering in July. I have met with this plant as far to the north as the Great Cypress Swamp, in Sussex country, Delaware, but very rare. The whole plant is aromatic and spicy.

This extensive genus which affords the Cinnamon, the Cassia, and the Camphor of commerce, is with the above exceptions, 5 species in Japan and 1 in Europe (*L. nobilis*), entirely tropical; India affords 3 of the most important species, long celebrated as spices; in the Canary islands there are 2, the tropical regions of America afford no less than 21, amongst the most remarkable of which is *L. caustica* of Chili, being poisonous, and the *L. Persea*, called avocado, and alligator-pear, producing a large and very grateful fruit formed like a pear.

The deciduous leaved species of the United States appear to constitute a subgenus, which I propose as follows:

* EUOSMUS.[†] Flowers polygamous or dioicous.—*Calix* 6-parted. *Nectarium* none. *Stamina* 9, fertile; 6 exterior, naked, the 3 interior augmented by 6 infertile short stamina, attached by pairs; anthers of the sterile stamina glanduloid. *Berry* 1-seeded.

Trees or shrubs with alternate deciduous leaves, entire or lobed; flowers appearing before the leaves in small conglomerate umbells, or conglomerate bracteate racemes in *E. Sassafras* and *E.* * *albida*.—(Filaments and anthers adnate; anthers 2 or, unequally, 4-celled, cells closed by so many vertical valves, which opening elastically often carry up the pollen in a mass. Stamina always 9; to the base of the 3 interior fertile stamina are attached 3 pair of short glanduloid infertile ones, destitute of pollen. Cotyledones of the seed, excentrically peltate, or laterally attached to the embryon a little above their base, after the manner of all the LAURINÆ, according to the observations of R. Brown.)

[†] From ευοσμος, odorous.

§ I. *Flowers umbellate, leaves entire.*

SPECIES. 3. *E. æstivalis.* Polygamous: Leaves venose, oblong acuminate, every where smooth. 4. ***Benzoin,*** (Spice-bush.) Polygamous: Leaves cuneate oboval, underside whitish and partly pubescent; buds and pedicells of the umbells smooth. 5. ***Diospyrus.*** Dioicous; Low, surculose, and virgate; leaves oblong-oval, under side veiny and pubescent; buds and pedicells villous; fruit large. OBS. A running twiggy shrub, 2 or 3 feet high, growing in swamps; leaves opaque, attenuated towards the base; bud scales purple, and as well as the younger branches villous; umbellate clusters sessile, 3 to 5-flowered; perfect stamina 9; glanduloid anthers of the imperfect stamens large, orange yellow; berries upon thick and distinct pedicells, oblong-ovate, scarlet, larger than those of *E. Benzoin;* cotyledones large, thick and oily, embryon small, laterally attached nearly at the base of the seed-lobes. 6. *geniculata.* Polygamous; Branches divaricate and flexuous; leaves small, cuneate-oblong, mostly obtuse, smooth except on the under side near the base, umbellets terminal, conspicuously pedicellate, smooth; anthers unequally 4-celled. HAB. Uniformly in sandy swamps, and on the margins of lagoons from Virginia to Florida. From 8 to 12 feet high; Branches grey and smooth, remarkably divaricated, so as to communicate a characteristic appearance to the ponds which they border; leaves about an inch and an half long, often less than half an inch wide.

§ II. ***Buds producing both leaves and flowers; racemes conglomerate, corymbose; leaves lobed.***

7. *Sassafras.* Dioicous; arborescent; buds, younger branches and the under side of the leaves pubescent; leaves entire, or 2 or 3 lobed, under side prominently veined. (Red Sassafras.)—Anthers unequally 4-celled. The female flower produces the 6 infertile stamina only.

8. * *albida.* Dioicous; arborescent; buds and younger branches smooth and glaucous; leaves entire, or 2 or 3

lobed, every where very smooth and thin, under side obsoletely veined, petiole longer. (White Sassafras.) **Hab.** In North and South Carolina abundant, from the Catawba mountains to the east bank of the Santee; growing with the common species, which is in North Carolina less abundant. I have not seen it in flower, therefore the comparison is incomplete, but all the inhabitants distinguish them perfectly by the names of white and red Sassafras, this species is also sometimes denominated Smooth Sassafras; the root is much more strongly camphorated than the ordinary sort and nearly white; it is also better calculated to answer as a substitute for *Ochra* (*Hibiscus esculentus*) than *E. Sassafras*, its buds and young branches being much more mucilaginous.

The genus *Ocotea* of Aublet appears to be very nearly related to the present, but the flowers are paniculated; and the filaments of the anthers are described as broad and truncate.†

Order II.—TRIGYNIA.

375. ERIOGONUM. *Michaux.*

Calix subcyathiform, tubulous at the base, border 6-cleft, segments unequal, externally villous. *Corolla* none. *Seed* 1, triquetrous, without margins, covered by the calix. (Flowers involucrate. Stipules none.)

Herbaceous or suffruticose plants, mostly stemless and cespitose, with alternate leaves, more or less tomentose; flowers involucrate; involucrum cup-shaped or campanulate, many-flowered (15 to 20;) flowers circularly articulated to the peduncles, many of them deciduous. (*E. to-*

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† This is the *Porostema* of Schreber's genera, and apparenty fictitious, so far as it varys from the account of Aublet. It is described as having a 6-parted calix; 9 filaments called nectaries, arranged in 2 series, 3 of them being internal and furnished with glands, each of these filaments is said to produce 4 pores (evidently the 4 polliniferous cells of *L. Sassafras*, and *L. geniculata*) but monstrous to relate, there arises from all these 36 pores, so many filaments supporting *peltate* anthers! and instead of a drupe containing 1 seed, as described by the accurate and celebrated Jussieu, we have to learn that it produces a capsule with several cells, and many seeds!

mentosum produces an erect and dichotomous stem, and verticillated leaves.)

SPECIES. 1. *E. tomentosum.* Called wild Rhubarb. 2. *flavum.* Fras. Catal. 1813. *E. sericeum.* PH. 1. p. 277. 3. *parviflorum.* (*E. pauciflorum.* PH. 2. p. 735.) 4. *parvifolium.* Calix naked; leaves petiolate, alternate, ovate, revolute; stem suffruticose.—Rees Encycl. under *Eriogonum*, with the following. HAB. Collected on the N. West coast of America, by A. Menzies, Esq. Involucrum very many flowered, proliferous; peduncles smooth. 5. *latifolium.* Calix naked; leaves petiolated alternate, cordate, undulated, petiole amplexicaule; stem suffruticose. HAB. North West coast of America—Menzies. OBS. Leaves 2 inches long, tomentose beneath, often aggregated towards the summit of the divisions of the caudex.

A North American genus, allied to *Rheum*, and also to the *Plegorhiza adstringens* of Molini.

376. PLEEA. *Michaux.*

Calix none. *Corolla* 6-parted, stellately spreading; segments linear, acute. *Capsule* roundish, with 3 angles, 3-celled, dissepiment obsolete. *Seeds* numerous, minute, subterete and caudate, attached to the margins of the valves.

Roots cespitose, fibrous; leaves irideous, compressed and attenuated, sempervirent, very narrow, furnished with distinct sheathes and distichally imbricated. Scape sheathed, nearly naked; flowers few, racemose, peduncles solitary, separately sheathed, about the middle bibracteate. Stamina 9 to 12.

SPECIES. 1. P. *tenuifolia.* Rare. Abundant in a single locality, a few miles south of Wilmington, N. Carolina, near the entrance of an extensive and open swamp. OBS. Fibres of the root nearly scarlet, sheathing base of the leaves of a fine pink red, leaves deep green, tenaceous and arid; racemes 6 to 9 flowered; flowers nearly saffron yellow, persistent. This plant is very closely allied to the section of *Tofieldia*, which I have called *Triantha*, but differs much in the form of the flower as well as in the habit and number of stamina.

CLASS X.—DECANDRIA.

ORDER I.—MONOGYNIA.

† *Flowers monopetalous.*

377. **ARBUTUS.** *L.* (Bear-berry, &c.)

Calix minute, 5-parted. *Corolla* ovate, diaphanous at the base, border small, 5-cleft, revolute. *Berry* superior, 5-celled; cells 1, or many-seeded.

Suffruticose or shrubby; leaves alternate; flowers axillary or terminal subracemose.

SPECIES. 1. A. *laurifolia.* 2. *Menziesii,* PH. 3. *tomentosa.* PH These 3 species are indigenous to the North West coast of America only. 4. *alpina.* 5. *Uva ursi.*

A small and widely dispersed genus, there being 4 species in Europe, one of them also indigenous to Candia and mount Ida, 2 others are common to North America, there is likewise 1 in the Levant, 1 in Acadia, 1 in some unknown part of America, 1 in Peru and 2 in Tierra del Fuego.

378. **GAULTHERIA.** *L.* (Mountain-tea, Partridge-berry, &c.)

Calix 5-cleft, or 5-toothed, bibracteate at the base. *Corolla* ovate, border partly 5-cleft, revolute. *Filaments* of the stamina hirsute; *Torus* or receptacle 10-toothed. *Capsule* superior, 5-celled, invested by the calix which becomes a berry.

Very low and suffruticose; leaves alternate or faciculated, sempervirent; flowers axillary, solitary or racemose.

SPECIES. 1. G. *procumbens.* HAB. Usually in the shade of other evergreens, particularly *Kalmias* and *Rhododendrons* from Canada to Georgia. Sometimes used as an indifferent substitute for tea. OBS. Stem procumbent, repent, suffruticose; flowering surculi very short, erect and pubescent; leaves of each shoot 4 or 5, crowded at the summit, obovate, ciliate-denticulate. Flowers axillary and solitary, nutant. Calix 5-toothed, bibracteate at the base. Corolla ovate, 5 angled, apex 5-toothed, internally pubescent. Stamina included; filaments hirsute, equal in length with the anthers opening by 2 terminal pores, each pore bicornute. Torus, internally 10-toothed, dentures alternating with the stamina. Style cylindric tubulous, the base immersed in the germ; stigmas 5, internally adnate. Germ roundish, 5-angled, 5-celled, cells about 20-seeded. Seeds attached to the 5 lobes of the central axis.—Very nearly allied to *Pyrola*, although monopetalous. 2. *Shallon*. PH. Apparently an Arbutus; the calix is not caliculate, the peduncle appears to be merely bibracteolate below the middle.

Of this small genus there appears to be 4 other species indigenous to the mountains of tropical America, and 1 in New Zealand.

379. VACCINIUM. *L.* (Whortle-berry, Huckle-berry.)

Calix **superior, 4 or 5-toothed.** ***Corolla*** **urceolate or campanulate, 4 or 5-cleft; border reflected.** ***Filaments*** **inserted upon the germ.** ***Berry*** **4 or 5-celled, many-seeded. (Stamina sometimes 8.)**

Suffruticose or shrubby, gemmaceous; bud scales often persistent, on the base of the small branches; leaves alternate in some species sempervirent; often scattered with resinous atoms; flowers pedicellate, solitary, axillary fasciculate, or racemose. Berries edible, mostly dark purple.

§ 1. *Leaves deciduous.*

SPECIES. 1. V. *stamineum*. Berries large, partly pyriform and green when ripe; bitter and scarcely edible. 2. *album*. 3. *arboreum*. The largest species of the genus in North America; branches divaricated; flowers partly as in V. *stamineum*; berries rather dry but sweet, with a granular pulp. 4. *dumosum*. Very low, and running profusely; berries perfectly black, to appearance, conspicuously crowned by the persistent calix. 5. *frondosum*. Berries and under side of the leaves glaucous; fruit large and rarely copious; agreeble, but quickly deliquescent and subject to be infested by the larva of insects. 6. *pallidum*. 7. *resinosum*. Flowers reddish, angular. Fruit not much esteemed. 8. *corymbosum*. Fruit subacid, and agreeable, as well as that of the following. 9. *amoenum*. 10. *virgatum*. 11. *fuscatum*. 12. *galezans*. 13. *ligustrinum*, 14. *tenellum*. Sometimes called "Sugar Huckleberries," small and rather too saccharine, but a very agreeable fruit, brought in great quantities to the Philadelphia market. 15. *uliginosum.* The European Whortle-berry. 16. *myrtilloides.* 17. *cæspitosum.*

§ II. *Leaves sempervirent.*

18. *Vitis Idæa.* Berries scarlet, farinaceous and insipid. A small subalpine species, indigenous also to the north of Europe. 19. *myrtifolium.* 20. *crassifolium.* A variety probably of the following. 21. *nitidum.* Branches procumbent and repent.—From Virginia to Georgia. 22. *myrsinites.* 23. *buxifolium.* 24. *ovatum.* 25. *obtusum.* These 2 last are indigenous to the North West coast.

A North American genus, with the exception of 3 species in Europe, 1 in Jamaica, 1 in the island of Taheiti in the Pacific, 1 indigenous to Madeira and Cappadocia, and 3 in Japan.

380. ANDROMEDA. *L.*

***Calix* 5-parted, minute, inferior. *Corolla* more or less ovate, or subcylindric, smooth; border 5-cleft, reflected. *Capsule* 5-celled, 5-valved; valves producing dissepiments from the middle, margins naked.**

A genus not altogether natural, including species of various aspects; they are mostly shrubs, in *A. arborea* and *A. pyrifolia,* bordering upon trees, 4 species indigenous to Siberia and the coldest parts of Europe, with 2 near the extremity of South America, resemble the genus Erica, and are amongst the most humble suffrutices; the leaves of most are alternate and sempervirent; flowers axillary and terminal, rarely solitary, more commonly aggregated, or racemose, in 2 or 3 species paniculated, protected by gemmaceous and proper bractes. (Seeds numerous, angular, usually truncate at one extremity, transversely attached [illegible] a 5 lobed pendulous receptacle, septa of the valves bipartile in A. *caliculata.*)

Species. 1. A. *tetragona.* In Canada. 2. *hypnoides.* North West coast. 3. *polifolia.* Common also to Europe. 5. *caliculata.* Obs. Flowers unilateral, axillary, solitary, approximating towards the end of the branches in the manner of a raceme; calix bibracteate; capsule roundish, coated; septa spontaneously bipartile in a longitudinal direction, exhibiting 5 distinct capsules primarily attached to a common axis opening externally, and connected by a 5-parted external envelope. Seeds numerous, truncate, angular, transversely accumulated.

(The capsule of *Clethra alnifolia* possesses a similar structure, excepting that the capsules are but 3 in place of 5, and do not separate spontaneously in consequence of being inseparably united at the base.) Indigenous also to Siberia. Almost the only species in upper Louisiana. 5. *augustifolia*. PH. Nearly allied to the preceding. 6. *nitida*. Fascicles of flowers axillary, subracemose. In swamps from North Carolina to Florida. 7. *axillaris*. OBS. Leaves oblong-oval, sublanceolate, acuminate, upper part cartilaginously serrulate, serratures mucronate, under side scattered with minute glandular hairs; younger branches also pulverulently pubescent; racemes axillary, spiked, sessile, imbricately bracteate; corolla cylindric-ovate, anthers awnless.—Stigma capitate. Capsule globular, depressed; septum indivisible, as in the preceding. Receptacular bodies 5, pendulous from the summit of the axis, each conspicuously pedicellate. Seeds brownish, angular, and truncate at the lower extremity. *A. spinulosa* of Pursh is certainly the same species with the present, in which oval leaves are not uncommon. HAB. From Virginia to Florida, and westward throughout the mountains of North Carolina into East Tennessee. 8. *acuminata*. 9. *floribunda*. Discovered and so named by the late Mr. John Lyon. A very elegant species.

Species with deciduous leaves.

10. *mariana*. An extremely fine, common, and hardy species, possessing somewhat the habit of *A. nitida* when flowering again in the autumn; its vernal flowering branches are, however, nearly naked. 11. *speciosa*. From Virginia to Florida. I have never seen the variety *pulverulenta* except in a singular locality of a few miles in North Carolina, not very far from Wilmington; it is undoubtedly a distinct and natural variety, but scarcely a species. 12. *racemosa*. Anthers 4-awned; racemes secund, calix bibracteate at the base; style cylindric, stigma indistinct. Leaves serrulate, somewhat pubescent on the under side. 13. *arborea*. (Called Sour-wood.) Racemes, paniculate; flowers secund, pubescent. Style pentangular, stigma indistinct. Capsule pubescent ovate; septum indivisible. Seeds subulate, longitudinally imbricated.

Principally a North American genus; at the same time there are 3 species in the island of Jamaica, 1 in the island of St. Thomas, 4 or 5 in other parts of tropical America, and 1 at the Straights of Magellan; Japan affords a single species, the islands of the Pacific as far as New Zealand 4 or 5, and Europe with Siberia 6.

381. *LYONIA†. (Species of ANDROMEDA. *Willd.*)

Calix **5-toothed. *Corolla* subglobose, pubescent. *Capsule* 5-celled, valves 5, septiferous in the middle, having their margins closed by 5 other external narrow valves. *Seeds* numerous, subulate, longitudinally imbricated.**

Shrubs with deciduous or sempervirent and alternate leaves; flowers small, collected into interrupted naked panicles or lateral and axillary fasciculi; peduncles exserted, destitute of bractes.—(Corolla covered with more or less of the pubescence of the leaves; anthers awnless, filaments each with an oval dilation at the base; style cylindric, stigma indistinct; capsule subglobose or ovoid, pentangular; dissepiments indivisible; the 5 lobes of the receptacular axis connate, situated at the summit of the capsule; seeds slender, caudate.)

Leaves sempervirent.

SPECIES. 1. *L. ferruginea.* OBS. Under side of the leaves and nearly all the rest of the plant, not excepting the flowers, invested with brown umbilicate furfuraceous scales; leaves obovate and flat, reticulated, but scarcely revolute on the margin; pedicells aggregated in 3s and 5s about 3-4 of an inch long; flowers very small, globular-ovate; capsule cylindric-ovoid, furnished with very conspicuous accessary valvulæ, which are deciduous, about half the breadth of the proper valves, and a little uncinate at the summit.—I have not been able to find these singular valvulæ in any other of the *Andromedas* except the species included in the genus here proposed.

2. *rigida.* PH. Differs from the preceding in being arborescent, with the leaves more oblong, convex and revolute on the margin, having the veins on the upper side, in particular obsolete or hidden, and the flowers globose. Michaux also adds that it flowers at a different time.

Leaves deciduous.

3. *paniculata.* Pubescence pilose and minute, upper surface of the older leaves partly smooth; leaves obovate-lanceolate, nearly entire, somewhat acuminated at both extremities, membranaceous; panicle terminal, nearly naked, corolla globose, somewhat pubescent; anthers awnless.—Capsules, pentangular, roundish.

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† To commemorate the name of the late Mr. John Lyon, an indefatigable collector of North American plants, who fell victim to a dangerous epidemic amidst those savage and romantic mountains which had so often been the theatre of his labours.

4. *frondosa?* Ph. Every part of the plant densely and pulverulently villous: leaves oblong, or oblong-obovate, partly obtuse, under side furfuraceously villous, often ferruginous, coriaceous and opaque, deciduous, prominently veined beneath, margin revolute, entire, and scabrous; panicle terminal, frondose? "corolla globose, hispid (pubescent?) anthers awned." Ph. I can scarcely entertain a doubt of the anthers being awnless in this species as well as in the preceding, although I am not certain whether this plant be that which he has described. Capsule roundish, pubescent, pentangular in consequence of the application of the 5 narrow accessary valvules, which are, however, much less conspicuous than in the sempervirent species; seeds subulate, longitudinally imbricated.

Were not this group of species so perfectly natural and easy to distinguish from the genuine *Andromedas*, it might have been retained as a subgeneric section of that genus, notwithstanding the singular structure of the capsule.

382. KALMIA. *L.* (Calico-bush, American Laurel.)

Calix 5-parted. *Corolla* salverform; border on the under side producing 10 cornute protuberances, and as many cavities in which the anthers are concealed. *Capsule* 5-celled, many-seeded, dissepiments marginal.

Shrubs with alternate or ternately verticillated and sempervirent leaves, (except, *K. cuneata* in which they are deciduous;) flowers in terminal racemose compounded corymbs, in one species solitary and axillary; peduncles long, 1-flowered, tribracteate at the base, external bracte originating from the rachis; buds naked; (anthers opening by 2 oblique truncate pores.)

Species. 1. K. *latifolia.* Canada to Georgia. 2. *angustifolia.* 3. *glauca.* Obs. Branches terete, branchlets mostly triquetrous with the leaves ternate: leaves petiolate, subovate-oblong obtuse, nearly flat, scattered and ternate, every where smooth, glaucous on the under side, at length dependent; corymbs terminal, compound; corymbulets racemose, ternate; flowers subfastigiate, peduncle with 3 bractes at the base, disposed in 2 contrary series, pulverulently and viscidly pubescent as well as the calix; segment of the calix ovate acute; flower salverform, margin crenately lobed; anthers opening by 2 oblique truncate pores; stigma truncate entire. 4. *cuneata.* Obs. Stem slenderly and virgately branched; leaves deciduous, scattered, sessile, cuneate-oblong obtuse, with a mucronulate point, under side glandulary pubescent, from 10 to 15 lines long and 5 or 6 wide. Flowers disposed in sessile lateral fastigiate clusters of 4 to 6 in each, peduncles filiform more than an inch long, 1-flowered, bractes very minute. Capsules roundish, as in all the rest of the genus. HAB. *v. v.* In swamps betwixt Camden and Statesville, South Carolina. 5. *hirsuta.* HAB. Constantly on the drier margins of open swamps, abundant around Savannah in Georgia, accompanying the *Chamærops serrulata,* &c.

A North American genus, considered poisonous and often fatal to cattle; it is also not improbable but that the deleterious honey, recently complained of in Philadelphia, might have been collected by the bees from the flowers of the Calico-bush (*Kalmia latifolia,*) which in some places pervades the rocky woods and depressed summits of mountains, almost in a similar manner with the *Erica vulgaris* of Europe.

383. RHODODENDRON. *L.* (Mountain-Laurel.)

Calix 5-parted. *Corolla* partly funnelform, and somewhat oblique. *Stamina* declinate. *Capsule* 5-celled.

Large or ordinary sized shrubs, with sempervirent and alternate leaves; flowers subcorymbose lateral and terminal; pedicells long, 1-flowered, bracteolate at the base. Buds mostly terminal large and imbricated. (Anthers opening by 2 terminal truncate pores.)

SPECIES. 1. *R. maximum.* 2. *punctatum.* Found occasionally almost to Charleston, South Carolina.—S. Elliott, Esq. 3. *catawbiense.* Leaves distinctly petiolated, oval, whitish on the under side, often as much as 2 inches broad.

Of this very ornamental genus there are 3 species in Europe, 1 in the Levant, 3 in Siberia, 1 on the summit of Caucasus, and a very splendid and arborescent species, indigenous to the mountains of India.

384. RHODORA. *L.*

Calix 5-toothed. *Corolla* uneqal, of 2 petals, the upper one deeply bifid. *Stamina* declinate. *Capsule* 5-celled.

A shrub resembling Azalea, with purple flowers; younger leaves revolute; flowers faciculated, terminal.

Species. R. *canadensis.* The only species of the genus.

385. EPIGÆA. *L.* (Trailing-Arbutus.)

Calix large, 5-parted, tribracteate at the base. *Corolla* salverform, border 5-parted, spreading; tube internally villous. *Capsule* 5-celled; *Receptacle* 5-parted.

Herbaceous subcespitose evergreens; leaves alternate; flowers in dense axillary and terminal racemes.

Species. E. *repens.* Flowers fragrant, appearing early in the spring.—The mountains of the West India islands afford a second species of this genus.

386. * PTEROSPORA.†

Calix 5-parted. *Corolla* monopetalous, ovate, margin 5-toothed reflected. *Anthers* excentrically peltate, 2-celled, adnate to the filaments by the margin; bisetose. *Capsule* 5-celled, imperfectly 5-valved; dissepiments medial; septa and valves united towards the base and coalescing with the receptacular axis; *Receptable* 5-lobed. *Seeds* very numerous and minute, each furnished with a terminal wing.

An evanescent annual, destitute of verdure, with the habit of *Monotropa* to which it is allied. Leaves none, neither radical nor cauline; stem simple, racemose, flowers numerous, scattered; reddish, resembling those of Andromeda, peduncles rather long, 1-flowered, cernuous.

P. *Andromedea.*

Root . . . . Every part of the plant, except the corolla, covered with short brown viscid hairs. Leaves none. Stem about a foot high, perfectly simple, brown-red or purple, somewhat cylindric, sensibly attenuated upwards. Flowers numerous, (at least 60 or more) irregularly dispersed in an elegant raceme; peduncles spreading equally around the stem, sometimes collected in fascicles of 4 or 5 each, cylindric, nutant, 3-4 of an inch long, each

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† From πτερον, *a wing*, and σπορα, *a seed.*

subtended at the base by a longish linear paleaceous bracte. Calix 5-parted, segments ovate, nearly half the length of the corolla, somewhat pubescently ciliate, furnished with obscure longitudinal nerves. Corolla monopetalous, marcescent, ovate, open, margin 5-toothed reflected; dentures short-oval, obtuse, rosaceous, the rest of the corolla white. Stamina 10, included within the corolla; filaments subulate, flat and membranaceous, arising from the base of the germ; anthers small, 2-celled, traversed by and inseparably connected with the filaments, of an oboval form, attached by the margin, opening inwards from the base, or junction with the filament in an horizontal manner, or in other words in a contrary direction to that of the filament which supports it; at the base of this singular anther there is situated 2 small filiform processes nearly its length, which have probably been applied to the 2 sutures of the anthers before opening? but this I have not been able to verify; they may be merely such processes as we find in similar situations in *Andromeda*, *Vaccinium*, &c. Style 1, short and columnar; stigma capitate, obscurely 5-lobed. Capsule 5-celled, subglobose, valves 5, coalescing towards the base by their dissepiments with the axis of the receptacle; receptacle 5-lobed, lobes large alternating with the dissepiments; septa medial (or arising from the centre of the valves.) Seeds extremely numerous and minute, globular-ovoid, acute at the base, so as to appear almost fusiform, terminated upwards by a dilated roundish reticulated membranaceous wing. From an external inspection of this minutest of seeds, we perceive that the embryon, as the umbilicus, must be concentric and probably surrounded by a perisperm, but it may fairly be doubted whether this plant and *Monotropa* its coordinate are not deprived of cotyledones. *v. s.*

Hab. In Upper Canada, near the Falls of Niagara. Mr. C. Whitlow.

† † *Flowers polypetalous, regular.*

387. *HYPOPITHYS. *Dillenius.* (Pine-sap.)

Calix 3 to 5-parted. *Corolla* pseudo-polypetalous, persistent; segments 4 or 5, each with a cucullate nectariferous base. *Anthers* small, horizontal, 1-celled, at length opening flat. *Stigma* orbicular, with a bearded margin. *Cap-*

sule 5-celled, 5-valved. *Seeds* very numerous, minute, subulate.

Parasitic plants growing upon the roots of trees, destitute of proper leaves and verdure; root densely squamose, scales imbricated; stems aggregated, simple, invested with alternate scales; flowers racemose, pedicellate, raceme at first bent, at length erect. Scent of the whole plant musky.

Species. 1. H. **europæa*. (*Monotropa Hypopithys*. Sp. Pl.) In the pine-forests of Canada. 2. *lanuginosa*. Obs. Every part of the plant pubescent except the base of the stem and lower scales; scape more or less convolute and angular (often triangular;) peduncles nearly an inch long. Calix inconstant in the number of its segments; filaments pubescent, alternated at the base by 10 very short recurved filiform appendices; anthers excentrically peltate or rather rivetted to the filaments on one side, somewhat coriaceous, persistent, and opaque, almost reniformly dilated, opening outwards their whole breadth, and at length becoming revolute. Style pubescent, stigma orbicular; somewhat depressed, internally partly 5-lobed, margin bearded. Dissepiments of the capsule coalescing in the axis towards the base; consequently the fruit never expands, as is also the case with *Pyrola*, the margins of the capsule merely shrinking for the purpose of dissemination.

388. MONOTROPA. *L.*

Calix none. *Corolla* pseudo-polypetalous, persistent; segments 5, each with a cucullate, nectariferous base. *Anthers* reniform, horizontal, 1-celled, emitting the pollen near the middle, by 2 transverse foramina. *Stigma* orbicular, naked. *Capsule* 5-celled, 5-valved. *Seeds* very numerous, minute, subulate.

Parasitic plants, mostly upon the roots of trees, destitute of proper leaves and verdure; root an agglomeration of intricate succulent fibres producing many 1-flowered scapes or stems, scapes squamose, flowers at first nutant, primarily incurved. The whole plant white and smooth, destitute of the musky odor of *Hypopithys*, scent when bruised somewhat nauseous and liliaceous.

Species. 1. M. *morisoniana*. 2. *uniflora*. Obs. Root perennial? roundish, about the size of a walnut, composed of a vast number of intricately ramified and agglomerated succulent, brownish, brittle fibres. Stems several from the same root, squamæ ovate-obtuse, 5 to 7 nerved, nerves simple, rectilinear. Corolla persistent, sometimes subtended by 2 or 3 bractes; petals channelled, erect, adnate to the base of the germ, obsoletely 3-nerved, claws broad, cavernous. Filaments of the stamina pubescent, alternated at the base by 10 short recurved filiform processes; anthers conspicuous, membranaceous, peltate, reniform, and horizontal, partly inflated, 1-celled, furnished with 2 linear, transverse and margined foramina, situated about the middle, for the escape of the pollen. Style scarcely any; stigma every where smooth, orbicular, with a funnelform depression, and glandular margin, internally somewhat 5-toothed. Capsule 5-celled, 5-valved, 10-striate, septa medial, distinct above, coalescing in the axis towards the base, margins of the valves connected by cancellate fibres. Seeds very numerous and minute, entirely similar to those of *Pyrola chlorantha, P. rotundifolia,* &c. presenting through a lens a hyaline nucleus, which is nearly spherical, situated towards the centre of a membranaceous integument, attenuated below and terminating obtusely above. The seed is likewise similar in *Hypopithys,* and all these 3 genera are distinctly allied to the genus *Pyrola,* but the singular form and disposition of the anthers interposes a difficulty of considerable moment against incorporating them with the natural order ERICÆ. As a natural order, or section, the MONOTROPEÆ may be defined as follows:—Calix superior, 5-parted, persistent, sometimes wanting, or in the form of irregular bractes. Corolla perigynous, monopetalous, persistent, mostly divided to the base, so as to appear almost polypetalous. Stamina definite, distinct, double the number of the petals and arising from their base; anthers excentrically peltate, horizontal, adnate to the filaments, mostly 1-celled, opening variously, not by terminal pores. Germ superior, style 1, stigma simple, discoid. Fruit capsular, superior, 5-celled, 5-valved; septa medial, coalescing in the axis towards the base, receptacle 5-lobed, pendulous. Seeds numerous and very minute, nearly spherical, situated towards the centre of a samaroid attenuated membranaceous episperm, sometimes alated at its summit.—Plants after the manner of *Orobanche,* destitute of leaves and verdure; stems simple, scapiform, squamose, 1 or many-flowered.

389 PYROLA. *L.* (Wintergreen.)

Calix 5-cleft or 5-parted. *Petals* 5, deciduous. *Style* exserted. *Capsule* 5-celled, opening at the angles near the base, margins of the valves connected by an intricate tomentum; (septa medial, coalescing with the receptacular axis; lobes of the receptacle simple. *Seeds* very numerous and minute, samaroid.)

Herbaceous evergreens, with creeping shoots; leaves radical, alternate, aggregated, roundish, elliptic or ovate; scapes racemose or rarely 1-flowered, flowers pedicellate, unibracteate; style straight or declinate. Anthers biporose at the base, becoming inverted on the opening of the flower, and then presenting the pores upwards.

† *Style straight.*

SPECIES. 1. P. *uniflora.* Flower fragrant, exhaling an odor similar to that of Convallaria majalis. Leaves subovate, serrate; scape 1-flowered; pores of the anthers tubular. 2. *minor.* 3. *secunda.* Flowers inclined to one side of the raceme.

† † *Style declinate, stamina adscendent.*

4. *rotundifolia.* Leaves roundish, or dilated oval, obsoletely crenulate, partly coriaceous and lucid, petiole conspicuously marginated, about the length of the lamina; scape many-flowered; bractes ovate, acute; calix 5-parted, segments oblong-ovate, reflected at the points; petals longer than the stamina. OBS. The largest species of the genus; flowers white, with a rosaceous tinge, somewhat fragrant, scape 3 to 5-angled, sometimes convolute; bractes upon the naked part of the scape about 3, sheathing; bractes of the flowers as long or longer than the peduncles, and conspicuous; stigma annulate, 5-lobed.

5. * *elliptica.* Leaves membranaceous, oblong-oval and obtuse, or elliptic-ovate, plicately serrulate and acute, lamina always much longer than the petiole; scape naked or furnished with a single scale; bractes linear and subulate; calix 5-toothed, points subulate, reflected. HAB. Common around Philadelphia, and in the woods of New Jersey, with the former; flowering in June. Nearly allied to *P. rotundifolia,* but distinct both in character and aspect; the whole plant is smaller, the scapes are low and slender, accompanied by smaller flowers which are white and odorous, the petals are oblong-oval, about equal in length with the stamina which become fulvous, segments of the calix semiovate and dilated; scape acutely triquetrous, rarely convolute; style very long, stigma annulate 5-lobed.

6. *chlorantha.* Stamina slightly ascending; style twice their length, clavate, deflected and recurved; raceme

many-flowered; calix (appressed) shorter than the stamina. (Leaves opaque, roundish, lamina shorter that the petiole.)—Swartz, in Stockholm Trans. 1810. p. 190. t. 5. A very correct figure. P. *asarifolia.* Michaux, Flor. Am. 1. p. 251. *P. convoluta.* W. Barton, Prodr. Flor. Philad. p. 50. Hab. Recently discovered in Sweden by Swartz. Abundant in the sandy pine forests of New Jersey, near Philadelphia, &c. Obs. Leaves smaller than in *P. rotundifolia,* dark-green and not lucid, roundish-oval or more dilated and emarginate, margin obsoletely and repandly crenulate, lamina mostly longer than the petiole which is nearly destitute of a margin; scape naked, or with a single scale, acutely triquetrous, often remarkably convolute; bractes linear-lanceolate, shorter than the peduncles; calix 5-toothed, segments subsemi-ovate, dilated, subacute, appressed to the corolla; flowers greenish, and almost destitute of odor; petals nearly equal with the stamina; stigma annulate, 5-lobed, viscid; capsule roundish, umbilicately depressed, margins of the valves connected by an intricate tomentum, free at the base.

7. *dentata.* Rees Encycl. under *Pyrola,* with the 2 following. 8. *aphylla.* A species said to be destitute of leaves. 9. *picta.* Leaves ovate, subserrate, discoloured, flowers secund, pores of the anthers tubular.—Collected by A. Menzies, Esq. on the North West coast of America, with the 2 preceding.

A genus almost equally indigenous to Northern Europe, Asia, and North America.

390. CHIMAPHILA. *Pursh.* (Umbellate Winter-green.)

Calix 5-toothed. *Petals* 5. *Style* very short, immersed in the germ; *Stigma* annulate, orbicular, with a 5-lobed disk. *Filaments* stipitate; stipe discoid, ciliate. *Capsule* 5-celled, opening from the summit, margins unconnected.

Low suffruticose plants with evergreen serrated leaves, almost verticillately aggregated; scapes naked, umbellate. Anthers biporose at the base, becoming inverted in inflorescence.

Species. 1. C. *umbellata.* Obs. Stem proliferous; stamina sometimes 12 with 6 petals, &c. proper filaments arising from so many pedicells about the same length, which are thick, angular, and acutely terminated below, discoid above, with a ciliate or pubescent margin, disk violaceous; anthers spotted, pores truncate, divergent; germ surrounded at the base by a glandular ring. Style extremely short, hid in the umbilical depression of the germ; stigma convex, orbicular, disk cloven into 5 angular segments; germ somewhat conic. Capsule 5-celled; septa medial, artificially bipartile, coalescing below in the receptacular axil, margins of the valves destitute of connecting filaments, beginning to open at the summit; receptacle 5-lobed, pendulous, lobes bipartile. Seeds similar to *Pyrola*.

2. *maculata.*—Scape 1 to 3-flowered, sometimes with 12 stamina and 6 petals, flowers white; disk of the stipe which supports the filaments entirely villous; leaves ovate-lanceolate, incisely serrate, discolored. HAB. Indigenous also to the North West Coast of America.—Menzies.

Probably both species of this genus will be found also in East Asia and Europe.—The disposition of the pores at the base of the anthers in place of the summit, in this and the preceding genus, adduces an additional affinity to the genus Monotropa; we learn that there exists also a leafless species of *Pyrola*, on the North West Coast. V. Encycl.

391. LEDUM. *L.* (Labrador-tea.)

Calix 5-cleft. *Petals* 5. *Stamina* exserted. *Capsule* 5-celled, opening at the base. (Stamina also 5.)

Low shrubs with coriaceous leaves, which are revolute on the margin, and commonly tomentose on the under surface; flowers white, in terminal corymbs, peduncles long and 1-flowered, bracteate at the base.

SPECIES. 1. L. *palustre*. 2. *latifolium*. The leaves of this species are said to be a good succedanum for tea. Indigenous also to Greenland. 3. *buxifolium*, capsule ovate, opening at the summit; leaves smooth on both sides. Probably a distinct genus, but requires further examination. This species is extremely abundant on the highest summits of the Catawba ridge in North Carolina.

Of this small genus *L. palustre*, is also indigenous to the north of Europe.

392. CLETHRA, *L.*

Calix 5-parted, persistent. *Petals* 5. *Style* persistent; *Stigma* short and trifid. *Capsule* 3-celled, 3-valved, enclosed by the calix.

Shrubs with alternate deciduous leaves; flowers spiked axillary and terminal, bracteolate.

Species. 1. C. *alnifolia.* 2. *tomentosa.* 3. *scabra.* 4. *paniculata.* 5. *acuminata.* Some of these species are unquestionably doubtfull. The capsule in this genus is constructed similar to that of *Andromeda caliculata*, excepting the difference in the number of the cells, the seeds are likewise angular.

A North American genus, with the exception of a single species indigenous to the mountains of Jamaica.

393. MYLOCARIUM. *Willd.* (Buckwheat-tree.)

Calix 5-toothed. *Petals* 5. *Stigma* capitate, 3-angled, sessile. *Capsule* superior, suberose, 2 or 3-winged, 3-celled, cells 1-seeded. *Seed* subulate.

A tall evergreen shrub with subverticillated branches; leaves very entire, veinless, aggregated towards the summits of the branches; racemes bracteate terminal, pedicells 1-flowered bibracteolate. A genus; nearly allied to *Banisteria?*

Species. M. *ligustrinum.* On the margins of swamps in Georgia and Florida, 8 to 12 feet high. The only species known.

394. MELIA. *L.* (Pride of China.)

Calix 5-parted, small. *Petals* 5. *Lepanthium* cylindric 10-toothed, dentures bifid at the points, orifice internally antheriferous. *Style* cylindric, stigma 5-rayed. *Drupe* globose; nut 5-celled, 5-seeded.

Trees or shrubs, leaves unequally pinnate or bipinnate; flowers paniculate axillary.

Species. 1. M. *Azedarach.* Leaves bipinnate, leaflets smooth, ovate, dentate.—Flowers odorous, somewhat similar to jessamine, anthers alternating with the dentures of the lepanthium. Hab. Introduced into the southern states from India, and planted in vistas; in many places it is almost naturalized, it exists well without shelter as far south as Virginia, and small trees may now and then be seen in Philadelphia. The root has been used as a vermifuge, and in Barbary lamp oil is expressed from the nuts.

A genus indigenus to India.

395. TRIBULUS. *L.* (Caltrops.)

Calix 5-parted. *Petals* 5, spreading. *Style* none; stigma partly 5-cleft. *Capsules* usually 5, gibbous, mostly spinose, each 2 or 3 seeded.

Herbaceous plants, mostly prostrate or decumbent; leaves abruptly pinnate, flowers solitary, alternate, yellow.

SPECIES. 1. T.* *trijugatus.* Leaflets 3 pair, terminal ones largest, under side pubescent; capsules 5, small, 1-seeded, muricate, spineless. HAB. In wastes and gardens, as a weed around Savannah in Georgia, probably introduced from the West India islands, allied to *T. maximus*, but certainly distinct. OBS. Annual; stem diffuse, prostrate, terete, pubescent, and striated. Leaves opposite, bistipulate, equally pinnate, pinnæ always 3 pair, uppermost leaflets largest, oblique, lateral ones oblong, all abruptly and minutely pointed, upper side smooth, the under pubescent. Calix and peduncle pilose, segments ovate, acuminate. Petals roundish, spreading, yellow;—the flower resembling that of a small Cistus. Stamina 10, small. Fruit smooth, turbinate, pentangular, acuminated, not larger than that of *Pyrola*, capsules 5, 1-seeded, cristately muricate, attached to a large common axis.

Of this genus there are 2 other species in tropical America, 1 in Ceylon, and 1 common to Barbary and the south of Europe.

396. DIONÆA. *L.* (Venus's Fly-trap.)

Calix 5-parted. *Petals* 5. *Stigma* fimbriate, spreading. *Capsule* roundish, membranaceous, 1-celled, many-seeded.

Herbaceous; leaves radical, marcescent, alternately imbricated at the base so as to produce a squamose bulb, petiole spathulately alated, terminating in an articulated circular ciliated lamina, expanding to the light, and remarkably sensible to the touch of any extraneous body, and thus by suddenly folding, accidentally enclosing insects or the smaller leaves of neighbouring plants.†

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† This sensibility is said to reside principally in the 4 capillary processes situated upon the disk of the lamina. While engaged in collecting this plant in its singularly insulated situation near Wilmington, in North Carolina, I had occasion to

Flowers in a terminal subumbellate scape. Stamina 10 to 15.

Species. D. *muscipula*. Obs. Scape about 10-flowered, flowers in an umbell by pairs, each pair subtended by a single bracte. Calix persistent, 5-parted, segments ovate-oblong, margin membranaceous and glanduliferous. Petals 5, marcescent, cuneate-obovate and emarginate, with the margin somewhat lacerated, inserted with the stamina beneath the germ, rolling inwards on withering, at first convolute as in the flowers of *Hypericum*, in flower spreading and incurved, numerously nerved, nerves dichotomal above, diaphanous. Stamina 10 to 14 or 15, more rarely 16, disposed without any order relative to the petals, strictly polyandrous; filaments filiform, shorter than the petals, the interior ones sometimes petaloid; anthers whitish, with 4 angles, diaphanous; bursting on the opening of the corolla; pollen nearly white, conspicuous, 3 or 4-angled, lobes round. Style 1, tubular, stigma lobed, lobes lacerately fimbriate, at first involute towards the orifice of the style, after the manner of the coma in *Valeriana*. Germ roundish and depressed, partly 5-lobed, inflated, lobes emarginated, cell 1, vales none. Seeds 20, 25, or 30, black and polished, inversely conic-ovoid, destitute of perisperm? somewhat about the size and form of the seeds of *Hypericum perforatum*, attached to the receptacle by so many minute umbilical filaments, umbilicus not quite central, agreeing with the parallel of insertion upon the convex and favulose receptacle, which centrally occupies the base of the capsule. Capsule membranaceous, at length shrinking away so as to leave the seeds exposed upon the polyphore. Taste of the plant sweetish and afterwards transiently pungent, sap somewhat resinous, at first yellow. In drying the plant becomes black.

Hab. Hitherto exclusively found on the North side of Cape Fear river, North Carolina, and no where more abundant than round Wilmington. I have traced it for 50 miles north of that place, and am informed that it extends to Fayetteville.—This singular plant, notwithstanding the extraordinary peculiarity of its foliage, is evidently allied to the Hypericina, and more particularly to the genus

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observe that a detached leaf would make repeated efforts towards disclosing itself to the influence of the sun, these attempts consisted in an undulating motion of the marginal ciliæ, accompanied by a partial opening and succeeding collapse of the lamina, which at length terminated in a complete expansion and in the destruction of sensibility.

Elodea; in E. *campanulata,* the stamina are usually 9 to 12, the capsule membranaceous, in an early state by the inflection of the margins of the valves 3-celled, at length on opening resolving into a single cell with 3 parietal seminiferous margins, the seeds are in many respects similar to those of *Dionæa,* and *Drosera,* both in relative situation and form. The discrepancy consists then principally, in the disunion of the filaments at the base, 2dly, in the absence of valves, and 3dly, in the central and separate situation of the receptacle. The importance of the first of these objections is removed by the example of *Sarothra* inseparable from this order, in which there is also a capsule of a single cell, many species of *Hypericum* have also separated stamina; the second and third objections appear of considerable importance, and operate also against uniting *Dionæa* with *Drosera,* notwithstanding their other affinities and the additional one of a simple style, though deeply and divaricately divided, which we have found in the genus *Drosera.*—The limits of this little work will not admit of extended discussions; and we shall now merely suggest that these plants, if not actually incorporated with the HYPERICINA, ought to form a proximate order.

397. JUSSIEUA. *L.*

Calix 4 or 5-parted, superior, persistent. *Petals* 4 or 5, ovate. *Capsule* 4 or 5-celled, 4 or 5-valved, oblong, cylindric or angular, manyseeded, crowned by the calix; septa medial. *Seeds* numerous and minute attached to an angular axis. (Stamina 8 or 10.)

Herbaceous; leaves alternate; flowers solitary, axillary. Distinguished from *Œnothera* principally by the persistence of the calix, and from *Ludwigia* by the form of the capsule and number of stamens.

SPECIES. 1. J. *grandiflora.* Herbaceous and aquatic. Flowers conspicuously pedunculate, germ bibracteolate at the base; flowers equal to *Œnothera fruticosa.* 2. *erecta.* 3. *subacaulis,* PH. 4. **leptocarpa.* Annual; erect; stem and calix partly hirsute; leaves lanceolate subglabrous attenuated at both extremities; flowers sessile 5 or 6 petalled; capsule slender and cylindric. HAB. On the Missisippi and Missouri, copious; not aquatic. Allied to *J. pubescens,* but smooth except the stem, which is nearly simple about a foot high and irregularly angular; leaves about 2 inches, attenuated, but sometimes obtuse; germ cylindric 10 to 15 lines long, scarcely thicker than the capsule of an *Epilobium*, which the whole plant approaches in habit; calix 5 and sometimes 6-parted, with as many petals and 10 to 12 stamina; petals scarcely longer than the calix, yellow.

Principally a tropical genus almost equally divided betwixt India and America.

††† *Polypetalous; flowers irregular.*

398. CASSIA. *L.*

Calix 5-leaved. *Petals* 5, subequal. Three upper anthers sterile, the 3 lowest rostrate, upon longer and incurved filaments. *Legume* membranaceous, 2-valved.

Aborescent, suffruticose or herbaceous, some species annual; leaves pinnate; common petiole, and sometimes the partial ones glandulous; flowers axillary, aggregate, spiked or rarely solitary.

Species. 1. C. *Tora.* In Georgia, and on the banks of the Mississippi. 2. *occidentalis.* 3. *ligustrina.* 4. *linearis.* 5. *marilandica.* In most of the Atlantic States and in Louisiana, a considerable distance up the Missouri.—Considered an efficient substitute for the Senna of the shops, which is, however, said to be the produce of a species of *Cynanchum.* 6. *Chamæchrista.* From New England to Florida. 7. *faciculata.* 8. *nictitans.*

A tropical genus of more than 70 species, chiefly indigenous to America and India.

399. SOPHORA. *L.*

Calix 5-toothed, campanulate, gibbous on the upper side. *Corolla* papilionaceous; lateral petals (or wings) the length of the vexillum. *Legume* moniliform.

Aborescent or herbaceous; leaves pinnate; leaflets mostly numerous; flowers terminal, racemose or spiked.

Species. 1. S. * *sericea.* Leaves pinnate, about 10 pair; leaflets cuneate-oval, or subelliptic, smooth above, under side silky-villous; spikes many-flowered, subsessile; stem low and herbaceous. Hab. On the elevated plains of the Missouri, near the confluence of White river.—Obs. Perennial, stem branched scarcely a foot high, leaflets about 2 lines long. Spikes 3 or 4 inches, not exserted beyond the leaves, bractes subulate Calix tubulous, gibbous at the base on the upper side, margin 5-toothed, obtuse. Flowers white, rather large; vexillum resupinate, reflected, the claw rigid, limb rounded and obcordate; wings oblong, horizontal; carina of 2 petals cohering above, each with a single denture near the base and subulately terminated above as in *Oxytropis*. Filaments diadelphous, 9 and 1, but divided down nearly to the base. Germ cylindric and villous; style short rising erect, subcapitate. Legume not seen,—but the striking affinity of this plant to the well preserved specimens of *S. alopecuroides* in the Banksian herbarium justifies its admission into this genus. I am also obliged, however unwillingly, to state, after seeing the specimen so marked by the author himself, in the herbarium of A. B. Lambert, esq. that this is *Astragalus carnosus!* of Mr. Pursh, Flor. Am. 2. p. 740. Supplement; he having by mistake, applied the description of the fruit of an Astragalus which I had published to this species of Sophora.

A small and widely dispersed but scarcely natural genus, of which there are 2 very splendid and aborescent species in New Zealand, which now form the genus *Edwardsia*, 1 in tropical America? 2 in India, 1 in the Isle of France, 1 in the Levant, greatly resembling that which we have described, 1 in Siberia, and 1 in Japan.

400. BAPTISIA. *Ventenat. R. Brown.* PODALYRIA. *Michaux. Lamark. Willdenow.* (Wild Indigo.)

Calix half 4 or 5-cleft, bilabiate. *Corolla* papilionaceous, petals nearly equal in length; *vexillum* laterally reflected. *Stamina* deciduous. *Legume* ventricose, pedicellate, many-seeded.—BROWN. Hort. Kew. 3. p. 5.

Herbaceous perennials; leaves ternate, stipulate; flowers in terminal rarely lateral spikes or racemes, in some species solitary and axillary; in *B. perfoliata*, the leaves are obicular and perfoliate.

SPECIES. 1. B. *perfoliata*. 2. *uniflora*. 3. *villosa*. OBS. Legume oblong, obtuse, subcylindric; allied to *alba*. 4. *alba*. 5. *cærulea*. 6. *mollis*. Leaves conspicuously petiolate. This is the lowest species with which I am acquainted, and possesses the aspect of an herbaceous *Psoralea*. Stem purplish, somewhat decumbent, pubescent; leaves often 2 inches long and 1 wide, minutely pubescent on both sides; common peduncle 3-4 of an inch long, in which particular it strikingly differs from every other known species; stipules small, linear-lanceolate, acute; legume small with a subulate point. Hab. In North Carolina, principally upon the Catawba ridge, where it occurs abundantly in the open bushy forests. 7. **leucophæa.* Dichotomous stem and nerves a little villous; leaves ternate, sessile, rhomboidally obovate; stipules and bractes ovate, acute, large and foliaceous; racemes lateral, many-flowered; flowers secund; legume acuminated. Hab. In Georgia and Louisiana. (Abundant around St. Louis.) Somewhat allied to *P. cærulea*, but very distinct. A large species with ochroleucous flowers, in long and dense spikes, larger than those of any other North American species. Stem rather low but divaricate, leaves 2 inches long and an inch broad, obtuse. 8. *tinctoria.* So called from having been formerly employed as a substitute for indigo, all the genus probably possess this property in different degrees, though there is something peculiar in the structure of this plant. Calix about 4-toothed, the 2 uppermost of the 5 cohering into one, wings each furnished with a callosity at the lateral tooth.

A North American genus; the simple leaved species of the Cape of Good Hope being alone retained in *Podalyria.*

401. THERMIA. Thermopsis. *R. Brown.* Hort. Kew. 3. p. 3.

Calix subcampanulate, half 4-cleft, the upper segment truncate and emarginate. *Corolla* papilionaceous, petals nearly equal in length; *vexillum* reflected at the sides; *carina* obtuse. *Legume* compressed and falcate, attenuated at the base, many-seeded.

Herbaceous; leaves ternate petiolate, stipules large and foliaceous; spikes terminal, interrupted, subverticillate, erect; flowers yellow. Very distinct in habit from *Cytisus* but requires further comparison with that genus?

Species. 1.* *rhombifolia.* Leaflets rhombic-ovate, subcuneate, under side somewhat silky pubescent; stipules foliaceous, obliquely ovate, shorter than the petiole; raceme interrupted. *Cytisus rhombifolius*, T. N. in Fras. Catal. 1813. Pursh, Flor. Am. Sept. 2. p. 741. Suppl. Obs. Roots perennial, horizontally creeping to a considerable extent, sending up simple erect stems from 8 to 12 inches high, angular and nearly smooth, producing a few simple axillary branches after flowering. Lower stipules roundish and nearly as large as the leaves, common petiole nearly an inch long, exceeding the stipules in length; leaves about an inch long, and 1-2 an inch wide, scarcely obtuse, slenderly villous on the under side, smooth above, raceme subsessile, short and terminal, 3 or 4 inches long, few flowered; pedicells subverticillately aggregated; flowers yellow,† stamina deciduous, at least in the fruit, the cartilaginous cupulate torus alone persistent. Legume compressed, falcate, about 3 inches in length, here and there interrupted by abortive portions, but not articulated or intercepted, terminated by the persistent filiform style, with a minute and smooth stigma.—HAB. On denudated argillaceous hills near Fort Mandan. This plant is very closely allied to *Sophora lupinoides* of Pallas, *Thermopsis lanceolata* of Brown, and they appear inseparable in genus, that species when in perfection produces a long verticillated spike of flowers; some of Pallas's specimens, however, in the herbarium of A. B. Lambert, Esq. have a single verticill of flowers only as in the starved specimen figured in the Botanical Magazine, in this species the leaves are on both sides closely covered with a silky villous; the primary leaves it appears occur sometimes simple but always accompanied by the stipules after the manner of *Baptisia*.

402. CERCIS. *L.* (Judas-tree, Red-bud.)

Calix 5-toothed, the lower part gibbous. _Corolla_ papilionaceous, lateral petals or wings larger than the vexillum; carina dipetalous. _Legume_ compressed. "Seminiferous suture marginated. _Seeds_ obovate."—BROWN.

Small trees with ~~simple~~ orbicularly cordate leaves; flowers disposed in clusters upon the trunk and branches, purple, appearing before the leaves.

SPECIES. 1. C. *canadensis*.—Of this genus there is another species indigenous to the south of Europe.

403. VIRGILIA. *Lamark. Persoon. R. Brown.*

Calix 5-cleft. _Corolla_ papilionaceous, petals nearly equal in length; sides of the _vexillum_ not

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† This plant is noticed in the travels of Lewis and Clarke, as flowering early, and attracted attention soon after they left the Mandans in the spring.

reflected. *Stigma* beardless. *Legume* compressed, oblong, many-seeded.—R. Brown. Hort. Kew. 3. p. 4.

A small genus of trees or shrubs, with pinnated leaves and flowers in erect or pendulous racemes, which are yellow, white or blue. Probably not a natural group.

Species. 1. V. *lutea*. Racemes pendulous, legumes flat and petiolate; flowers yellow. A tree whose bark affords a yellow dye, similar to V. *aurea*. The whole tree except in the colour of its flowers, strongly resembles *Robinia Pseudacacia*. An occidental tree, hitherto found only in the mountains of Tennessee.

Of this genus there are 2 species at the Cape of Good Hope, 1 which is shrubby in New Spain, and 1 called V. *aurea* in Abyssinia.

Order II.—DIGYNIA.

404. HYDRANGEA. *L.*

Calix superior, 5-toothed minute. *Petals* 5. *Capsule* mostly 2-celled, striate, opening betwixt the persistent styles by a terminal foramen. *Seeds* many, longitudinally striate.

Shrubs with opposite leaves; flowers cymose, in *H. quercifolia* subpaniculate, margin of the cyme radiate, radii masculine or imperfect;—(flowers in *H. vulgaris* often with 3 styles and a capsule of 3-cells; capsule properly superior, invested by the cohering calix, septa marginal; styles each terminating downwards in a 2-lobed pendulous receptacular placenta; seeds small, marked with about 10 striæ. Proper capsule when divested of the calix, dividing horizontally above the middle.)

Species. 1. H. *vulgaris*. The whole plant distinctly pubescent, more particularly the nerves on the under side of the leaf; leaves concolor, broad oval, acuminate, sharply dentate, cyme mostly naked, styles 2 and 3. Obs. *H. cordata?* also of Mr. Pursh. 2. *nivea*. Leaves broad-oval, acuminate, obsoletely dentate, under side whitely tomentose; flowers constantly radiate. 3. *quercifolia*. Leaves sinuately-lobed; ferruginously tomentose on the under side; cymes radiate, paniculate. Hab. In Florida and on the Mississippi, near Natchez. *v. v.*

An American genus, if we exclude *H. hortensis* of India, separated principally on the ground of its producing 3 styles, which is perhaps occasionally common to every *Hydrangea.*

405. SAXIFRAGA. *L.* (Saxifrage.)

Calix 5-parted, persistent. *Petals* 5. *Capsule* 1-celled, many-seeded, opening betwixt the persistent styles.

Leaves alternate, rarely opposite, entire or divided; sometimes all radical; flowers mostly numerous, densely or loosely paniculate, in some species nearly solitary.

Species. 1. S. *Aizoon.* 2. *stellaris.* 3. *serpyllifolia.* 4. *androsacea.* 5. *bronchialis.* 6. *nivalis.* 7. *virginica.* 8. *Geum.* 9. *leucanthemifolia.* 10. *pensylvanica.* 11. *erosa.* Ph. Panicle slender and divaricately branched, by which it is readily distinguished from No.10. 12. *oppositifolia.* Flowers bright purple. 13. *aizoides.* 14. *setigera.* 15. *rivularis.* 16. *sibirica.* 17. *pectinata.* 18. *cæspitosa.* 19. *tricuspidata.* Note. All these species, except Nos. 7, 9, 10, 11, are indigenous to lower Canada, Labrador, or the colder regions of New Califonia. The whole genus of more than 70 species is chiefly alpine and European.

406. TIARELLA. *L.*

Calix 5-parted, persistent. *Petals* 5, entire, inserted upon the calix and conspicuously unguiculate. *Capsule* 1-celled, 2-valved; one of the valves larger.

Leaves mostly radical, simple, or ternately divided, scapes or stems racemose or paniculate.

Species. 1. T. *cordifolia.* 2. *Menziesii.* 3. *trifoliata.* 4. *biternata.*

A North American genus, of which Nos. 1 and 3, are also indigenous to Northern Asia.

407. MITELLA. *L.*

Calix 5-cleft, persistent. *Petals* 5, pinnatifid, inserted upon the calix. *Capsule* 1-celled, subsemibivalve; valves equal.

Leaves simple, mostly radical; scapes naked or bifoliate, 1 species produces a prostrate stem; flowers racemose or loosely spiked.

SPECIES. 1. M. *diphylla*. 2. *cordifolia*. 3. *reniformis*. 4. *prostrata*. 5. *grandiflora*.

A North American genus with the exception of *M. nuda* of Northen Asia.

408. SAPONARIA. *L.* (Soapwort.)

Calix tubulous 5-toothed, naked at the base. *Petals* 5; unguiculate. *Capsule* 1-celled.

Flowers axillary, commonly corymbose, calix in some species angular.

SPECIES. 1. S. *officinalis*. Introduced, but now abundantly naturalized. This species occurs sometimes monopetalous.

409. DIANTHUS. *L.* (Pink.)

Calix cylindric, coriaceous, 5-toothed, the base surrounded by 4 to 8 scales. *Petals* 5, unguiculate. *Capsule* cylindric, 1-celled, bursting at the summit.

Flowers aggregate, fastigiate; or dispersed upon a branching stem. Some of the species suffruticose. Leaves opposite as in the preceding genus to which this is nearly allied, always narrow, linear or subulate.

SPECIES. 1. D. *Armeria*. Introduced, now naturalized in a few localities in New Jersey. 2. *carolinianus*. A very obscure species.

A genus of more than 40 species, not one of which is yet found to be indigenous to either America; commencing sparingly in the north of Europe, where several of the species are rather naturalized than indigenous, we observe the genus to accumulate towards the south, and passing into Barbary, the Levant, and Greece, at length partly terminates in Arabia Felix, Palestine and Persia; a few species are found, however, in Siberia, in China, in Japan, and even at the Cape of Good Hope. The fine hardy and odorous species have been cultivated from the earliest times, and are amongst those ancient denizens of the humblest gardens which bid defiance to the inroads of the rarer foreigners.

410. SCLERANTHUS. *L.* (Knawel.)

Calix 1-leaved, border 5-cleft. *Stamina* inserted upon the calix. *Corolla* none. *Seeds* 1 or 2 included in the calix.

Small plants with opposite and linear leaves; flowers axillary and subcorymbosely terminal. Possesses the habit of *Arenaria*.

Species. 1. S. *annuus*. So abundantly naturalized in sandy arable fields as to appear native.

An European genus of 3 species.

Order III.—TRIGYNIA.

411. CUCUBALUS. *L.* (Campion.)

Calix inflated or campanulate, 5-toothed. _Petals_ 5, unguiculate, naked, or partly crowned at the orifice. _Capsule_ 3-celled.

Flowers axillary dichotomal or terminal, often subpaniculate.

Species. 1. C. *Behen*. Introduced? 2. **niveus*. Upper part of the stem, divaricate and dichotomous; leaves oblong-lanceolate, acuminate, minutely and pulverulently pubescent, uppermost ovate; calix obtuse, campanulate, inflated, subpilose; petals small, reflected, bifid at the extremity, claws exserted beyond the calix, nearly naked; flowers solitary, dichotomal and terminal. *Silene nivea*. Muhlenberg's Catalogue. *v. s.* For the dried specimen I am indebted to the friendship of Z. Collins, Esq. to whom it had been communicated. **Hab.** Upon an island of the Susquehannah, near to Columbia.—Muhlenberg. **Obs.** Stem nearly smooth and slender. Leaves opposite, about 2 inches long and half an inch wide, sessile. Flowers remote, solitary, dichotomal and teminal, each arising from the centre of a pair of leaves; peduncles about half an inch long. Calix somewhat pilose, reticulately veined, border 5-cleft, segments obtuse, and membranaceously margined. Petals white, nearly naked at the orifice, exserted, but narrow, limb reflected, scarcely half the length of the calix. Seeds bright brown, subreniform, striate and transversely rugose. Too nearly allied to *C. Behen* to be admitted into the genus *Silene*. 3. *stellatus*. Leaves verticillate.

The remainder of this genus of 10 species, is entirely European, excepting *C. spergulifolius*, of Armenia. In the Flora Britanica, and Hortus Kewensis, this genus is limited to a single anomalous species, *C. bacciferus* and the rest referred to *Silene*.

412. SILENE. *L.* (Catch-Fly. "Wild-Pink.")

Calix cylindric or conic. *Petals* 5, unguiculate, generally crowned at the orifice. *Capsule* 3-celled.

Peduncles 1 or many-flowered, axillary, terminal, or dichotomal.

Species. 1. S. *quinquevulnera*. 2. *pensylvanica*. 3. *virginica*. 4. *Catesbæi*. Flowers scarlet. 5. *regia*. Curt. Bot. Mag. Stem tall and erect; leaves broad-ovate, somewhat asperate; branches trichotomally floriferous; calix long and cylindric, petals generally entire, style and stamina exserted. Hab. Throughout the western states sparingly from Ohio to Lower Louisiana, one of the most splendid species in existence. Obs. Root perennial. Stem erect and stout 4 or 5 feet high, much branched, joints tumid, branches rigid and erect, and as well as the whole plant pulverulently pubescent and viscid, upper leaves acuminate. Flowers large, and bright scarlet, very numerous, dichotomal and terminal. Calix conspicuously striated. Petals oblanceolate usually entire, appendices of the orifice distinct.

6. **rotundifolia*. Decumbent; stem, calix and margin of the leaves very pilose; leaf dilated-oval, acuminate at each extremity; flowers few trichotomal; petals laciniated, subquadrifid, lateral segments shorter; orifice crowned. Hab. In the state of Ohio and Tennessee, on the moist ledges of rocks; flowering from July to August. A very singular and beautiful species with bright scarlet flowers. Obs. Partly procumbent and diffuse, the stems being weak and almost filiform. Leaves nearly smooth excepting the margin, ventricosely dilated, and abruptly attenuated at each extremity; subulately and abruptly acuminate above. Flowers few, almost terminal, simply or doubly trichotomal. Calix densely pilose and soft, angularly striate, cylindric, smaller towards the base. Petals furnished with the usual appendages at the orifice: limb about half an inch long, almost like that of *Lychnis Flos cuculi*, dilated, and pilose on the margin, cleft distinctly about half way down, each of the segments again subulately divided, besides these there are also 2 other external subulate segments originating towards the base. Capsule conspicuously stipitate.

7. * *Baldwynii*. Flowers very large and rosaceous trichotomal; petals divaricately laciniate, stem, calix and sublanceolate leaves pilose. *v. s.* In herb. Baldwyn. Hab. On the banks of Flint river, Florida.—Dr. Baldwyn. Ve-

Very distinct from *S. Catesbæi*, but requires further examination. Flowers pale red and of uncommon magnitude. 8. *antirrhina*. 9. *nocturna*. 10. *acaulis*.

A genus comprehending nearly 100 species, extending throughout Europe and passing into Barbary, Greece, the Levant, and Siberia; no part of the southern hemisphere appears to afford any species except the Cape of Good Hope.

313. STELLARIA. *L.* (Stitchwort.)

Calix **5-leaved, spreading. *Petals* 5, bipartite. *Capsule* ovate, 1-celled, many-seeded, summit 6-toothed.**

Flowers dichotomal and terminal, white; stems furnished with an elastic centre.

Species. 1. *S. pubera*. Obs. Perennial. Stem diffuse and decumbent, dichotomous, having a pubescent line on one or two sides. Leaves sessile, ovate-oblong, acute, somewhat undulated, conspicuously pubescent on the margin and under side of the mid-rib towards the base, from 10 to 15 lines long and about 5 broad. Flowers always dichotomal (or in the forks of the branches;) peduncle pubescent, deflected. Calix pubescent, segments lanceolate-ovate, somewhat acute, with inflated nerves which are often abruptly dichotomous. Petals deeply bifid, longer than the calix, stellately expanding, large, very obtuse at the base and closely sessile, lobes linear-oblong. Capsule roundish, ovate. The whole plant has much the aspect of *S. nemorum*. 2. *media*. (Chickweed.) Introduced. 3. *graminea*. 4. *uliginosa*. Smith. Flor. Brit. These 2 last species are native, and very common.

5. * *elongata*. Stem diffuse and procumbent, pubescent; leaves oblong-lanceolate mucronulate; peduncles lateral, and solitary, very long; flowers apetalous. Hab. In Carolina and Georgia. *S. longipedunculata*. Dr. Baldwyn. Obs. Stem extremely long and intricately branched, uniformly pubescent as well as the peduncles; leaves about 2 lines wide and 8 or 10 long, smooth, attenuated below, terminated by callous points. Peduncles solitary, from 10 to 15 lines. Calix acute, membranaceously margined. Petals none. Styles 3. Capsule 1-celled, summit 6-toothed, so that it is not a species of *Micropetalon* but a *Stellaria* which renders that genus unnatural.

An European genus.

314. ARENARIA. *L.* (Sand-wort.)

Calix 5-leaved, spreading. *Petals* 5, entire. *Capsule* 1-celled, many-seeded.

Flowers axillary or terminal; leaves stipulate; flowers sometimes with 5 to 8 stamina, and 5 styles. Seeds membranaceously margined in *A. rubra.* and *A. media.*

Species. 1. A. *peploides.* On the sea-coast. 2. *lateriflora.* Common in the mountainous parts of Pennsylvania. 3. *serpyllifolia.* 4. *thymifolia.* 5. *macrocarpa.* 6. *patula.* 7. *squarrosa.* 8. *striata.* 9. *glabra.* 10. *juniperina.* 11. *laricifolia.* 12. *fasciculata.* 13. *canadensis.*

An European genus and many of the species alpine.

Order IV.—TETRAGYNIA.

315. MICROPETALON. *Persoon.* Spergulastrum. *Mich.*

Calix 5-leaved, spreading. *Petals* 5, minute, entire or none. *Capsule* ovate, 4-valved.

Habit similar to Stellaria.

Species. 1. M. *lanuginosum.* 2. *lanceolatum.* 3. *gramineum.* Is not this *Stellaria graminea?*

A trifling genus which ought to be united with *Stellaria.*

Order V.—PENTAGYNIA.

316. SPERGULA. *L.* (Spurrey.)

Calix 5-leaved. *Petals* 5, entire. *Capsule* ovate, 1-celled, 5-valved.

Leaves verticillate, stipulate, or opposite and naked; flowers axillary and terminal sometimes pentandrous. Seeds mostly marginated. A genus partly distinguishable by habit from *Arenaria,* but destitute of character.

Species. 1. S. *arvensis.* 2. *saginoides.* Common in sandy fields and upon rocks from New Jersey to North Carolina.

317. CERASTIUM. *L.* (Mouseear-Chickweed.)

Calix 5-leaved. *Petals* 5, bifid or emarginate. *Capsule* 1-celled, bursting at the summit, 10-toothed.

Flowers terminal; stamina sometimes 5, and 3 styles; capsule subcylindric, or roundish. Stems with an elastic centre.

Species. 1. C. *vulgatum*. 2. *viscosum*. 3. *semidecandrum*. 4. * *glutinosum*. Softly pubescent and viscid, erect; leaves elongated, distant, linear-oblong, acute; petals oblong, bifid at the point, longer than the calix; peduncles at length much longer than the flowers, at first shorter. Hab. On the banks of the Schuylkill near Philadelphia. A very distinct and truly indigenous species. Obs. Annual. Stems nearly simple and erect, several from the same root, often a foot high, remarkably viscid above. Radical leaves spathulate, all rather acute, cauline subamplexicaule, linear-oblong, sublanceolate, plaited at the point, often 2 inches long, and only 3 lines broad. Flowers terminal, subpaniculate; petals linear-oblong. Stamina 10, 5 alternately longer. Styles 5, short. Capsule double the length of the calix, 10-toothed, oblong-cylindric, teeth acuminate.

5. *arvense*. 6. *tenuifolium*. 7. *elongatum*. Ph.

An European genus.

318 AGROSTEMMA. *L.* (Corn Cockle.)

Calix 1-leaved, tubulous, coriaceous, summit 5-cleft. *Petals* 5, unguiculate; limb obtuse, and undivided. *Capsule* 1-celled, with a 5-toothed opening.

Flowers terminal. Petals in *A. Githago* entire and naked; the rest have emarginate petals and an appendiculate orifice.

Species. 1. A. *Githago*. Naturalized in corn-fields as in Europe.

319. LYCHNIS. *L.*

Calix tubulous, 5-toothed. *Petals* 5, unguiculate; limb subbifid. *Capsule* 1 to 5-celled, with a 5-toothed opening.

A genus of various habit and scarcely natural; flowers fastigiate, dichotomously paniculate, or solitary.

SPECIES. 1. L. *Alpina.*
A dispersed genus, but principally European.

320. OXALIS. *L.* (Wood-sorrel.)

Calix 5 leaved, persistent. *Petals* 5, partly connected at the claws. *Stamina* unequal, connected at the base, 5 of them alternately shorter. *Capsule* pentangular, 5-celled, bursting at the angles. *Seeds* covered by an elastic arillus.

Herbaceous plants with tuberous roots, caulescent or scapose; leaves aggregated, alternate, ternate, in a few species simple or binate, digitate, or multifid, in 1 pinnate with the leaves sensitive as in Mimosa; leaves at first spirally involute; scape 1-flowered, or umbellate, and involucrate.

SPECIES. 1. O. *Acetosella.* 2. *violacea.* This species appears often to flower again late in the autumn, and is then destitute of leaves. 3. *Lyoni.* PH. 4. *corniculata.* 5. *stricta.* 6. *Dillenii.* These 2 last are scarcely distinct species.

This genus of more than 100 species is, with a few exceptions in Europe and America, peculiarly indigenous to the Cape of Good Hope. The leaves of all the species are more or less sensitive and nictitant.

221. PENTHORUM. *L.*

***Calix* 5 to 10 cleft. *Petals* 5 or wanting. *Capsule* with 5 cusps, and 5-cells, cells dividing transversely, many-seeded; seeds minute.**

Herbaceous, and subaquatic; leaves alternate, not succulent, margin serrate; flowers terminal, cymosely spiked.

SPECIES. 1. P. *sedoides.* According to Mr. Pursh there is a second species of this genus in China, collectted by Sir G. Staunton.

322. SEDUM. *L.* (Stonecrop.)

***Calix* 5-cleft. *Petals* 5. Five nectariferous scales at the base of the germ. *Capsules* 5, superior, many-seeded, opening internally.**

Herbaceous and succulent; leaves alternate, sometimes subverticillate; flat or cylindric; flowers cymose, mostly terminal, sometimes solitary and axillary.

SPECIES. 1. S. *pulchellum.* Closely allied to the following. Commencing in Virginia about Harper's Ferry, it continues throughout the mountains to Georgia, mostly upon the shelvings of rocks and also upon the trunks of decayed trees on the banks of the Ohio, &c. 2. *ternatum.* Generally accompanying the preceding. 3. *stenopetalum.* Ph. Towards the Columbia. 4. *telephioides.* Scarcely distinct from *S. Telephium.*

Almost exclusively an European genus.

323. *DIAMORPHA.†

Calix 4-cleft. *Petals* 4. *Capsule* opening externally, 4-celled, cuspidate, cusps subulate, divergent; cells about 4-seeded.

A very small succulent biennial, verticillately branched from the base; branches 3 or 4; flowers minute, cymose, terminal; leaves alternate subterete.

Species. 1. D. *pusilla.* *Sedum pusillum.* Mich. 1. p. 276. *Tillæa cymosa,* of the present publication, which see p. 110, it is however very distinct from that or any other genus with which I am acquainted. The capsule is at length coriaceous, its summit nearly flat, with 4 horizontal diverging subulate cusps, the cells uniformly 4 are carinate and open externally. Although the fruit may be considered as 4 ingrafted capsules, they are never at any period separable.

Note. This genus should have been placed in *Octandria Tetragynia.*

Order VI.—DECAGYNIA.

324. PHYTOLACCA. *L.* (Poke.)

Calix 5-leaved, petaloid. *Berry* superior, 10-celled, 10-seeded.

Herbaceous, rarely shrubby; flowers racemose, racemes often opposite to the leaves, rarely axillary; leaves acute, mostly lanceolate. Styles 5, 7, 8, and 10: stamina 7, 8, to 20.

Species. 1. P. *decandra.* The young shoots when boiled form an article of diet, while the full grown plant proves a drastic purgative. A tincture of the ripe berries has been recommended in rheumatism. It is said that there is a method of fixing the fine purple color of the fruit upon wool, but that a more durable red is obtained from the root. This species has become naturalized in the south of Europe.

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† From *διαμορϑη*, *deformed,* or contrary formed; in reference to the fruit, which is formed differently and contrary to the rest of the Sempervivæ.

The few species of this genus, about 6, are all indigenous to North or South America, except *P. abyssinica*, and *P. icosandra* of India.

CLASS XI.—ICOSANDRIA.

ORDER I.—MONOGYNIA.

225. **CACTUS.** *L.* (Indian Fig, Melon Thistle, &c.)

Calix superior, multifid, segments imbricate. *Petals* numerous, arranged in several series, those of the interior larger. *Stigma* many-cleft. *Berry* umbilicate, many-seeded.

Arborescent, shrubby and herbaceous species of various forms, remarkably carnose, articulated and proliferous, but usually destitute of proper leaves, mostly producing divergent clusters of spines intermixed with tenaceous and pungent bristles or pubescence.

† MELOCACTUS. *roundish.*

SPECIES. 1. C. *mamillaris.* Tubercles ovate terete, bearded; flowers scarcely exserted; berries scarlet about equal with the tubercles.—On the high hills of the Missouri probably to the mountains. A species which was hitherto supposed solely indigenous to the tropical parts of America. It appears to be smaller than the West India plant. 2. **viviparus.* Cespitose; glomeruli subglobose; tubercles cylindric-ovate, bearded, marked above with a proliferous groove; flowers central large and exserted; exterior segments of the calix, ciliate; fruit ficiform, greenish. HAB. With the above, on the summits of gravelly hills; flowering from June to August; flowers large and bright-red, almost similar to those of *C. flagelliformis.* OBS. Nearly allied to the preceding in habit, but differing probably from every other species of this section by the remarkable proliferous tendency of its leaves, which not unfrequently multiply to the destruction of the parent plant, it consequently never becomes so large as *C. mamillaris*; inhabiting a climate which is scarcely temperate, from the great elevation of the land above the level of the sea, these 2 species in this country produce long and somewhat fusiform roots, penetrating deep into the earth; towards the approach of winter the upper part of the plant becomes dry; excessively spiny, and almost juiceless, in the spring numerous shoots issue from the root, and those glomeruli which have withstood the intensity of the frost, thus the plants becomes cespitose, forming masses sometimes of 2 or 3 feet in breadth. In spite of its armature the wild antelope of the plains finds means to render it subservient to its wants by cutting it up with his hooves.

The flowers are generally central, more than an inch in length; segments of the calix linear, exterior ones revolute with a fringed margin; petals numerous, narrow, linear and acuminate; berry about the size of grape, smooth and eatable; seed small, cotyledones none, (in the seeds which germinated with me, merely a tubercle similar to those of the parent plant.)

†† Opuntiæ. *Compressed, articulations proliferous. Seeds larger, with 2 distinct cotyledones?*

3. *Opuntia.* (Common Indian Fig, or Prickly-Pear.) Articulations compressed, ovate; spines double, exterior ones strong and subulate, often deciduous, interior setaceous; fruit succulent, smooth. Hab. Common in sandy fields from New Jersey to Florida.—Cotyledones 2, rolled horizontally around the radicle, which is directed towards the umbilicus.

4. **ferox.* Articulately proliferous; articulations larger, nearly circular and very spiny; spines double, larger spines radiate persistent; flowers numerous; fruit dry and spiny. Hab. In arid situations on the plains of the Missouri, common. Obs. A much larger plant than C. *opuntia* to which it is nearly allied; exterior spines radiate, with one of them central, solitary and erect; flowers aggregated, marginal, dilute sulphur yellow, rosaceous towards the base; petals subemarginate. Style thick, stigmas 8 to 10 greenish. Colytedones 2, distinct. Flowering in July. Upon this species I found the *Coccus coccinelliferus.*

5. * *fragilis.* Articulately proliferous; articulations short and oblong, somewhat terete, doubly spiny and fragile; flowers solitary, small, at the point of the articulations; fruit dry and spiny. Hab. From the Mandans to the mountains, in sterile, but moist situations, much smaller than the preceding, and remarkable for its brittleness, the articulations though not very tumid coming off and attaching themselves to every thing which they happen to touch, so much so as to lead the hunters to say that it grows without roots.—Most of the species of this section have irritable or sensitive stamina.

An American genus of near 40 species, almost exclusively tropical. They are amongst the most singular of vegetable productions, but scarcely all referrible to the same genus.

326. *BARTONIA.

Calix superior, 5-cleft, persistent. *Corolla* of 10 petals. *Capsule* cylindric-oblong, 1-celled, summit flat, valvular: *valvulæ* 3 to 7. *Receptacular placentæ* 3 to 7, parietal. *Seeds* numerous, compressed, arranged horizontally in a double series.

Herbaceous; leaves alternate, pinnatifid, asperate; flowers large, terminal and solitary, vespertine, (or expanding towards sun-set,) not deciduous or marcescent after closing, but reopening at the usual time for several days in succession, when closed involute in a cone; small valves of the capsule variable in number, but corresponding with the placentæ, and the spiral striatures of the stigma; in the germ there exists the rudiments of a columnar receptacle. The whole plant turns blackish in drying, on the slightest wound it also exsudes a resinous sap which instantly blackens in the air. Pubescence compoundly barbed and tenacious, as appears to be more or less the case in the whole order of the LOASEÆ.

SPECIES. 1. B. *ornata.* Leaves lanceolate, interruptedly pinnatifid; segments subacute; base of the capsule foliose; valves 5 to 7; seeds nearly without margin. *B. decapetala.* Bot. Mag. OBS. The whole plant, except the petals more or less scabrous with short barbed hairs. Biennial; root long, succulent and fusiform. Stem irregularly angular and much branched, 2 to 4 feet high. Leaves alternate, sessile, oblong-lanceolate, interruptedly and sinuately pinnatifid, 6 to 8 inches long; segments 3 to 6 lines in length, incurved, generally with 1 or 2 dentures on the lower side; uppermost leaves ovate-lanceolate, or dilated at the base. Calix inseparably investing the germ, border 5-cleft, superior, segments lanceolate, acuminate, persistent, an inch long. Flowers odorous, yellowish white, of uncommon magnitude almost resembling some species of *Cactus*, solitary and terminal, sessile. Petals 10, lanceolate-ovate, concave and spreading, conspicuously unguiculate, acute, numerously nerved, inserted upon the calix, about 2 inches long, the 5 interior somewhat smaller. Stamina very numerous, from 200 to 250 more or less, a little shorter than the corolla and inserted also upon the calix; filaments scarcely attenuated, filiform; anthers small, oblong, distinct, inserted upon the subulate summit of the filament, about a line in length, 2-celled. Germ appearing inferior, being inseparably invested by the lower part of the calix. Style filiform, a little longer than the stamina, tubular, arising from the centre of the valves, longitudinally and spirally striate, nectariferous at the base, striæ 5 to 7, corresponding in number with the valves of the capsule; distinct stigma none. Capsule cylindric-oblong, 1-celled, terminated by the persistent calix; summit flat and orbicular, valvular, valves 5 to 7, opening from the centre; receptacle parietal, placentulæ 5 to 7, succulent, 2 rows of seeds in each. Seeds numerous, flat, subovate, nearly immarginate; embryon straight, surrounded by a thin carnose perisperm; cotyledones 2, flat, white; radicle umbilical, inferior, exserted, plumule inconspicuous. HAB. On the banks of the Missouri in broken argillaceous soils. Flowering from the latter end of August through September, and into October, but never in July.†

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† In reply to the insinuations of Mr. Pursh, under this article, I must here remark, that he could not possibly have had any authority to assert, or even suppose me capable of disputing with the late indefatigable and unfortunate M. Lewis, the discovery of this plant; this charge is merely a subterfuge. Mr. Pursh, before he had perused the notes which I had made from the living plant on the Missouri, with an intention of rendering them public, had not then, by his own acknowledgment, any thing like materials for publishing this genus, my friend A. B. Lambert, Esq. Vice President of the Linnean Society, can also aver the truth of this statement. Mr. P. possessed merely an imperfect capsule of the plant, which M. Lewis had collected while descending the Missouri, he not having seen it then at the time of flowering; the collections made by that gentleman while ascending the Missouri were unfortunately lost, and it is only in that collection, according to the time of the year, which he could possibly have had flowering specimens, of this late autumnal plant. This unfortunate want of fidelity, prevented me from communicating to Mr. F. Pursh, many of the plants which now appear in this work. Appeals to the public are to me extremely irksome, but silence on such an occasion would have been indeed the most degrading condemnation, and a tacit submission to reiterated injustice. It was not surely honourable in Frederick Pursh, whom I still esteem as an able botanist, to snatch from me the little imaginary credit due to enthusias-

2. *nuda.* Leaves sublanceolate, interruptedly pinnatifid, segments obtuse, capsule naked, valves 3, seeds marginated; exterior stamina petaloid often sterile. **Hab.** Near the Great Bend of the Missouri, on gravelly hills, apparently perennial, at least often existing 3 or 4 years, judging from remaining vestiges. **Obs.** Possessing all the habits of the preceding, the specific character excepted. **Obs.** Leaves subcanescently hirsute, asperate, pubescence short and appressed, hairs subulate and diaphanous, (through a common lens) repeatedly barbed from the point to the base, after the manner of this and the following genus; but never glandulous. Flowers smaller than the preceding, of the same color, and making a nearer approach towards *Mentzelia* by the external petaloid filaments.

The genus Bartonia one of the most singular and splendid in North America, appears to be distinctly concatenated with *Loasa* and *Mentzelia*, but approaches nearer to the latter than the former, indeed nothing essentially separates it from this genus, except the augmention of petals and the structure of the capsule and seeds, but these exceptions on the other hand approximate it to *Loasa*, from which it is essentially distinguished by the absence of lepanthia or internal heteromorphous petals, by the unconnected disposition of the stamina which are more numerous, and also by the inferior position of the germ and the perfect flatness of the converging valves of the calix. —We have here for our reflection an additional proof of the wonderful harmony of Nature, and a recommendation to the philosophical study of natural affinities.—Can we be better employed than in occasionally contemplating and demonstrating this vast and infinite chain, in which even we ourselves are subservient,—a mysterious but sublime concatenation, to us without beginning and without end!

327. MENTZELIA. *Plumier. L.*

Calix 5-cleft, superior, deciduous. *Petals* 5. *Capsule* inferior, 1-celled, cylindric, 3 to 6 seeded, summit flat, 3-valved. *Seeds* oblong, partly angular, longitudinally arranged.

A genus of herbaceous and asperate plants clothed with multibarbe hairs; leaves alternate more or less ovate and

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tic researches made at the most imminent risk of personal safety!

crenate; flowers dichotomal and terminal, solitary, yellow; exterior stamina petaloid or all fertile, from 20 to 30.

SPECIES. 1. M. * *aurea*. Stem dichotomous; leaves lanceolate-ovate, deeply and angularly crenate; flowers dichotomal, sessile; petals oval, acuminate, entire; capsule about 3-seeded. HAB. On the shelvings of rocks, and rocky hills, Louisiana, near the lead mines of St Louis, and on the banks of the Missouri, below the confluence of the Platte. OBS. The whole plant is extremely asperate and tenaceous: pubescence repeatedly barbed. Root succulent and tuberous; stems about 12 inches high, divaricate and dichotomously branched. Leaves 10 to 15 lines long, sessile, 6 to 8 lines wide, the uppermost ovate, the lower attenuated at both extremities, subacute; margin particularly toward the middle deeply and incisely crenate. Flowers solitary, of a deep golden yellow, scarcely a third part so large as those of M. *hispida* but very elegant in form, stellately expanding, about 8 lines in diameter, very evanescent, opening to the sun only about 4 hours. Calix persistent, segments narrow and linear. Stamina all equal and fertile, none of them petaloid, 20 to 22, nearly as long as the corolla; filaments subulate; anthers terminal distinct, small and nearly round. Style filiform, the length of the stamina, convolute, marked with 3 longitudinal striæ as in *Bartonia*, also corresponding with the number of valves and seeds in the capsule, stigma none. Capsule cylindric, sessile, very small. Seeds about 3, linear-oblong, smooth, subangular, nearly the whole length of the capsule, or longitudinally arranged. (The seeds of *M. hispida* according to the description of Cavanilles, are very asperate.) This species appears to be considerably allied to *M. aspera*, deciding from figures and description.

328. DECUMARIA. *L.*

Calix superior 8 to 10 cleft. *Petals* 8 to 10. *Capsule* 7 to 9-celled, many-seeded. *Seeds* subulate, minute.

Sarmentose twining shrubs with ovate leaves; flowers in corymbose panicles white and odorous. Stamina 16 to 25.

SPECIES. 1. D. *barbara*. 2. *sarmentosa*. A genus peculiar to the southern states of America.

329. PHILADELPHUS. *L.* (Mock-Orange.)

Calix superior, turbinate, 4 or rarely 5-cleft.

Petals 4 or 5. *Stigma* 4-cleft. *Capsule* 4 or 5-celled, many-seeded.

Shrubs with opposite impunctate leaves; flowers opposite or terminal, partly spiked or corymbose, white, each of them bracteolate. (Fruit grooved, inseparably invested by the calix; separable into 4 or 5 parts, each part having a dorsal cleft and inflected margins which are united inwards towards the base.)

Species. 1. P. *inodorus*. 2. *Lewisii*. Ph. 3. *grandiflorus*. 4. * *hirsutus*. Style and stigma undivided; leaves oblong-ovate acute, sharply and angularly denticulate, upper side hirsute, the under whiteish and hirsutely villous; branchlets about 3-flowered; peduncle bibracteate near the summit. Hab. On the rocky banks of French Broad river, Tennessee, near the Warm Springs, abundant. Obs. A smaller shrub than any of the preceding with slender virgate branches. Petals almost uniformly 4, dilated ovate, or broad oval, very obtuse, mostly oblique, slightly emarginate, pure white; segments of the calix subsemiovate, acute, and villous; style shorter than the stamina, simple, stigma clavate, undivided, 4-grooved.

A North American genus, with the exception of *P. coronarius*.

330. CHRYSOBALANUS. *L.* (Cocoa Plum.)

Calix 5-cleft, inferior. *Petals* 5. *Style* lateral. *Drupe* pruniform; nut 5-grooved, 5-valved, 1-seeded.

Arborescent or suffruticose; leaves entire, stipulate; flowers paniculately racemose, axillary and terminal; drupe esculent.

Species. 1. C. *oblongifolius*. Obs. A low suffruticose plant, rarely more than a foot high, but running horizontally to a considerable extent; stipules very minute, leaves sessile, cuneate-oblong, 3 or 4 inches in length, seldom more than 1 in breadth, coriaceous, prominently and reticulately veined, shining on both surfaces, partly sempervirent, margin obsoletely crenulate, the under surface, sometimes, though rarely, white and tomentose. The panicle, which is terminal, is also very far from being large; the peduncles of the panicle are almost uniformly 3-flowered; drupe, or rather berry, cylindric-oblong, oliveformed, the shell merely coriaceous. *v. v.* In the sandy pine forrests of Georgia, not far from Augusta.

Of this genus there is another species indigenous to the West India islands.

331. PRUNUS. *L.* (Plum and Cherry.)

Calix **inferior, 5-cleft, deciduous.** ***Petals*** **5.** ***Style*** **terminal.** ***Drupe*** **even, nut with a somewhat prominent suture.**

Trees with alternate stipulate leaves, generally serrated on the margin and in some species glandular towards the base, in a few the leaves are sempervirent; flowers earlier than the leaves in the plums, later than the leaves in the cherries, aggregated, corymbose, or racemose.

Species. 1. P. *virginiana.* 2. *serotina.* 3. *canadensis.* 4. *caroliniana.* (Evergreen Carolina Cherry-tree.) 5. *semperflorens.* 6. *borealis.* 7. *pensylvanica.* 8. *nigra.* 9. *hiemalis.* 10. *pygmæa.* 11. *pubescens.* 12. *pumila.* 3. *depressa.* Ph. *P. Susquehannæ?* Willd. enum. 519. On the summits of the highest hills in upper Louisiana to the Rocky Mountains, where it sometimes produces fruit at the height of 3 or 4 inches from the ground; on the shores of Lake Huron the same species attains the height of 2 or 3 feet. 14. *Chicasa.* In the United States, hitherto discovered only in the vicinity of ancient Indian stations; it appears to have been cultivated by the aborigines, but its original site is unknown. 15. *maritima.* The fruit rather small, and scarcely eatable. 16. *cerasifera.* 17. *spinosa.* The Sloe. These 2 last are unquestionably introduced and scarcely naturalized.

Principally a North American genus; there are at the same time 7 species in Japan, 1 in China, 7 in Europe, 2 in the West India islands, 1 indigenous to the mountains of Crete and Lebanon, the poisonous but ornamental Laurel from the Levant. *P. Cerasus,* the common cherry, and *P. domestica,* the plum, although variously claimed in Europe, have been probably introduced from Persia or the East.

332. TIGAREA. *Aublet.*

Calix **inferior, 5-cleft.** ***Petals*** **5.** ***Capsule*** **1-seeded, oblong, acuminate, pubescent, opening internally and longitudinally.**

A tropical genus as far as described by Aublet and almost exclusively American, comprehending shrubs which are said to be sarmentose, having entire leaves which are usually scabrous and stipulate, producing flowers in axillary racemes; a habit so diverse from the plant described by Mr. Pursh, as to render the identity of genus extremely doubtful; in this plant, which appears to be a low, erect, and much branched gemmiferous shrub, with small crowded pubescent leaves, obtuse and trifid at the summit, the flowers are solitary and terminal, resembling those of some species of *Cretægus* but yellow?

SPECIES. 1. T. *tridentata*. Collected in the recesses of the Northern Andes or Rocky Mountains, by the late Governor Lewis.

333. LYTHRUM. *L.* (Loosestrife.)

***Calix* 6 to 12-toothed, tubular. *Petals* 6, equal, inserted upon the calix. *Capsule* superior, 2 to 4-celled, many-seeded. (Stamina 2, 6, 8, 10, and in some species 12.)**

Herbaceous; leaves alternate, opposite and verticillate; flowers verticillately spiked and terminal, or verticillate and axillary subsolitary, purple.

SPECIES. 1. L. *Salicaria*. 2. *verticillatum*. OBS. Subaquatic, pulverulently pubescent; stem hexangular recurved, and often taking root at the extremities, sometimes suffruticose, leaves lanceolate, opposite and ternately verticillate, attenuated at both ends. Calix 6, 8, 10 or 12-toothed. Flowers axillary, verticillate, biternately aggregated. Petals 5 or 6. Stamina 8, 10, and 12, much exserted, petals undulated. Capsule roundish, always 3 or 4-celled, dissepiments marginal; seeds angular. 3. *virgatum*. 4. *alatum?* PH. Smooth and virgately branched; leaves opposite, cordate-ovate, acute, subpetiolate, with a somewhat scabrous margin; angles of the stem marginated; flowers axillary, solitary, much longer than the leaves, minutely petiolate, hexandrous. OBS. A very elegant and ornamental species; branches brown, at first erect, at length recurved, and then sending out numerous axillary branchlets; flowers often double the length of the leaves, deep and bright purple; leaves not much larger than those of Thyme, which they somewhat resemble, and *L. Serpyllifolia* would certainly have been a much better name than the obscure one of *alatum*, a character which in this species is scarcely if at all, more remarkable than in *L. Hyssopifolia.*—Stigma conspicuously capitate; capsule subcylindric, 2-celled, flowers minutely bibracteate after the manner of the genus. 5. *lineare*. Smooth and virgate; leaves mostly opposite, narrow, linear and acute; flowers axillary, solitary, nearly equal with the leaves, hexandrous. OBS. The leaves appear somewhat succulent and opaque, length 6 or 7 lines, breadth about 1 line; flowers small and nearly white, bibracteate.

6. *Hyssopifolia*. Leaves alternate and opposite longer than the flowers, linear lanceolate, subelliptic; flowers solitary axillary, hexandrous. OBS. Stem nearly simple or sparingly branched from the base, quadrangular and some-

what margined, flowers pale purple. HAB. In the state of New York.

Principally an American genus extending within the tropics; there are also 5 species in Europe, among which *L. Hyssopifolia* and *Salicaria* are also common to America.

334. CUPHEA. *Brown.*

Calix ventricose, tubular, 6 to 12-toothed, unequal. *Petals* 6, generally unequal, inserted upon the calix. *Capsule* with the calix bursting longitudinally, 1-celled. *Seeds* few, lenticular, imbricated.

Herbaceous rarely suffruticose; leaves opposite; flowers terminal, partly solitary, or racemose; petals in 2 species nearly equal; 2 others are remarkably viscose.

SPECIES. 1. C. *viscosissima.* Stamina 12. HAB. From Pennsylvania to Louisiana and on the banks of the Mississippi. (Abundant around Lancaster, and now beginning to occur in the vicinity of Philadelphia in a few localities.)

An American genus, entirely tropical, except the *viscosissima* which extends also to Brasil.

ORDER II.—DIGYNIA.

335. FOTHERGILLA. *L.*

Calix inferior, truncate, obsoletely crenate. *Corolla* none. *Filaments* very long and clavate. *Germ* bifid. *Capsule* 2-lobed, 2-celled, cells 2-valved, 1-seeded. *Seed* indurated.

A shrub resembling a species of Alnus; flowers in a terminal thyrse or short dense spike, vernal and appearing before the leaves. Fruit similar to Hamamelis.

SPECIES. F. *alnifolia.* The only species of the genus.

336. AGRIMONIA. *L.* (Agrimony.)

Calix inferior, 5-toothed, caliculate, externally setigerous about the middle; setæ uncinate. *Petals* 5, inserted upon the calix. *Seeds* 2, inclosed in the base of the calix.

Herbaceous; leave alternate, pseudopinnate, segments unequal; flowers in terminal spikes each tribracteate.

SPECIES. 1. A. *Eupatoria.* 2. *parviflora.* 3. *striata.*

A small genus, chiefly indigenous to Europe.

337. CRATÆGUS. *L.* (Hawthorn.)

Calix **5-cleft.** ***Petals*** **5.** ***Styles*** **1 to 5. Fruit a farinaceous berry, or small apple producing 2 to 5 bony seeds, or nuts.**

Small spiny trees or shrubs; leaves alternate simple, undivided or lobed; peduncles many-flowered, mostly terminal and corymbose, rarely solitary lateral or terminal; flowers white sometimes rosaceous; fruit scarlet or yellow.

Species. 1. C. *apiifolia.* Flowers and berries small, the latter scarlet. Preferable to every other species in North America for hedges, remaining green very late in the autumn, being also perfectly hardy and spreading low so as to produce a close fence, similiar to that afforded *C. Oxyacantha* in the north of Europe, a species which in the United States thrives badly and grows up erect so as to be unfit for close hedges as in its native soil. 2. *spathulata.* 3. *coccinea.* This fine species frequently becomes a small tree and produces abundance of fruit. 4. *populifolia.* 5. *pyrifolia.* 6. *elliptica.* 7. *glandulosa.* 8. *flava.* Fruit large, not very abundant, but of an exquisite flavor, similar to that of the finest apple. 9. *parvifolia.* 10. *punctata.* 11. *Crus galli.*

Principally a North American genus, at the same time there are 3 species in Japan, 6 in Europe, 1 in the Levant, 1 in India, and 2 in the northern parts of Africa, there are also 2 species said to be indigenous to Peru.

338. SORBUS. *L.* (Mountain Ash.)

Calix **5-cleft.** ***Petals*** **5.** ***Styles*** **2 or 3.** ***Berry*** **farinaceous, inferior, 2 or 3-seeded.** ***Seeds*** **cartilaginous.**

Trees with alternate leaves, which are pseudopinnate, pinnatifid, deeply toothed or lobed; flowers corymbose terminal.

Species. 1 *S. americana.* Apples fulvous insipid and farinaceous, about half the size of those of *Pyrus coronaria,* seldom containing more than 1 or 2 perfect seeds. 2. *microcarpa.*

An European genus *S. aucuparia,* and *S. hybrida,* extending within the arctic circle.

ORDER III.—TRIGYNIA.

339. SESUVIUM. *L.*

Calix 5-parted, coloured. *Petals* none. *Capsule* superior, ovate, 3-celled, opening transversely all round, many-seeded. *Seeds* minute.

Succulent herbaceous plants with opposite semiamplexicaule entire leaves, and axillary, solitary flowers.

SPECIES. 1. S. *sessile.* Leaves spathulate, flat; flowers sessile, rosaceous. HAB. On the sea-coast, from New Jersey to Florida. Leaves sometimes nearly linear; segments of the calix pointed below the summit.

ORDER IV.—PENTAGYNIA.

340. ARONIA. *Persoon.* MESPILUS. *L.*

Calix 5-toothed. *Petals* 5. *Berry* inferior 5 to 10-celled; cells 1 or 2-seeded. *Seeds* cartilaginous.

Shrubs without spines, having alternate undivided leaves, and flowers which are corymbose or racemose, generally white; fruit a small black purple or scarlet pomoid berry, containing seeds similar to those of apples.

SPECIES. 1. A. *arbutifolia.* Berries scarlet in corymbs, astringent and scarcely eatable at any period; but without any acidity, and sweetish. 2. *melanocarpa.* Fruit also astringent and black or nearly so, but preferable to the preceeding. 3. *Botryapium.* Berries purple, pruinose, very saccharine and agreeably flavoured. 4. *ovalis.* 5. *sanguinea.* PH. 6. **Alnifolia.* Smooth: leaves roundish, the upper part toothed, pinnately nerved, under side somewhat glaucous; raceme simple, elongated; fruit black and sweet. HAB. In ravines and on the elevated margins of small streams from Fort Mandan to the Northern Andes. OBS. A shrub 4 or 5 feet high; leaves roundish and retuse, somewhat attenuated at the base, toothed towards the summit; fruit dark purple, somewhat pruinose, very agreeable and saccharine; ripening about July and August.

A North American genus, with the exception of 2 European species, and 1 said to be indigenous to mount Ida in Crete.

341. PYRUS. *L.* (The Apple and Pear.)

Calix 5-cleft. *Petals* 5. *Apple* large and carnose, inferior, 5-celled, many-seeded.

Middle sized trees with alternate undivided leaves; flowers mostly corymbose and terminal, rarely solitary and lateral, white or red in the apples; fruit turbinate, only umbilicate at the summit, saccharine and partly deliquescent in the Pear; fruit in the Apple globose umbilicate at each extremity, subacid, and at length more farinaceous.

SPECIES. 1. *P. coronaria.* Ripe fruit yellowish and subdiaphanous, always mildly acid. 2. *angustifolia.*

A genus nearly divided betwixt Siberia and Europe, there is also one species in Persia, and a very splendid and hardy species in China with crimson flowers.

342. SPIRÆA. *L.*

Calix spreading 5-cleft, inferior. *Petals* 5, equal, roundish. *Stamina* numerous exserted. *Capsules* 3 to 12, internally bivalve, each 1 to 3-seeded.

Shrubby or herbaceous; leaves alternate, simple, or pinnately divided, stipules adnate to the petiole, sometimes minute or none; flowers mostly corymbose or paniculate.

SPECIES. 1. S. *salicifolia.* 2. *tomentosa.* 3. *hypericifolia.* 4. *chamædrifolia.* 5. *betulifolia.* 6. *opulifolia.* 7. *capitata.* PH. 8. *discolor.* PH. 9. *sorbifolia.* 10. *Aruncus.* 11. *lobata.*

A genus almost equally divided betwixt Siberia and North America.

343. GILLENIA. *Moench.* SPIRÆA. *L.* (Indian Physic.)

Calix subcampanulate, border 5-toothed. *Corolla* partly unequal. *Petals* 5, lanceolate, attenuated, coarctate at the claws. *Stamina* fewer, included. *Styles* 5, contiguous; stigmas capitate. *Capsule* 5-celled; cells 2-seeded.

Herbaceous plants with alternate ternately divided or pseudopinnate leaves furnished with stipules; flowers few, terminal, dispersed, subpaniculate; petals elongated partly irregular; (roots cathartic and emetic.)

SPECIES. 1. G. *trifoliata.* 2. *stipulacea.* Radical leaves pinnatifid. A species confined to the west side of the Alleghany mountains, extending as far north as the state of New York, according to the observations of Dr. I. Cleaver. For a figure, see Dr. W. Barton's Medical Botany, p. 71. tab. 6.

Hitherto a North American genus.

ORDER V.—POLYGYNIA.

344. ROSA. *L.* (Rose.)

Calix **urceolate, carnose, contracted at the orifice, border 5-cleft.** ***Petals*** **5.** ***Seeds*** **many, hispid, attached to the inside of the calix.**

Shrubs for the most part aculeate, prickles scattered; leaves alternate, pseudopinnate, in one species simple; lower part of the petiole alated by the decurrent stipules; flowers solitary or subcorymbose and terminal, mostly large, in the gardens often double.

SPECIES. 1. R. *blanda.* 2. *parviflora.* 3. *nitida.* 4. *lucida.* 5. *gemella.* 6. *Lyonii.* 7. *setigera.* 8. *carolina.* 9. *rubifolia.* A very fine flowering species, but nearly scentless; abundant round Detroit, and through all the western states to Louisiana. 10. *lævigata.* 11. *rubiginosa.* *R.* *suaveolens.* PH. Merely naturalized; certainly not native.

A genus of near 50 species chiefly indigenous to Europe, there are also a few species in Japan and India.

345. RUBUS. *L.* (Bramble.)

Calix **5-cleft inferior.** ***Petals*** **5.** ***Berry*** **compound; acini 1-seeded.**

Shrubby suffruticose or herbaceous plants; stems mostly aculeate, often annual, more or less recurved or sarmentosely procumbent, the herbaceous species destitute of armature; leaves simple, ternate, digitate, or pinnately divided; flowers terminal, racemosely paniculate or solitary, rarely subcorymbose; fruit edible, red or black, sometimes yellowish.

SPECIES. 1. R. *Idæus.* Indigenous throughout Upper Canada and on the borders of the lakes of the St. Lawrence. 2. *occidentalis.* 3. *villosus.* Leaves in 5s. digitate, elliptic acuminate, sharply serrate, partly villous on both sides. 4. *strigosus.* 5. *canadensis.* 6. *cuneifolius.* PH. Very prickly, but producing often an abundant and well flavoured fruit. This species grows always in sandy woods, way-sides and fields, profiting by the destruction and removal of the trees which formerly restrained it. Mr. P. must not have seen this plant in perfection, otherwise he would not have remarked that "the berries were hard and dry." 7. *hispidus.* 8. *trivialis.* Dewberry. 9. *flagellaris.* 10. *inermis.* 11. *spectabilis.* 12. *odoratus.* (On the banks of Wishahikon creek near Philadelphia); abundant throughout the mountains, always amidst rocks. 13. **parviflorus.* Shrubby and unarmed; leaves simple, palmately lobed; peduncles 2 or 3-flowered: flowers small; segments of the calix villous, ovate, abruptly acuminate; petals oblong-ovate, white. HAB. On the island of Michilimackinak, lake Huron. 14. *saxatilis*. 15. *obovalis*. 16. *arcticus*. 17. *pistillatus*. 18. *pedatus*. 19. *Chamæmorus*.

A widely dispersed genus of about 50 species, extending from the arctic circle, throughout Europe to the West Indies, and passing the equator, species are also found in Peru, Chili, Japan, China, the islands of the Pacific, and on the continent of India.

346. DALIBARDA. *L.*

Calix inferior 5-cleft, spreading. *Petals* 5. *Styles* 5 to 8, long and deciduous. *Seeds* dry.

Small herbaceous plants with creeping perennial roots; scapes 1 or few flowered, flowers white or yellow; leaves entire or ternately divided.

SPECIES. 1. D. *repens*. 2. *Fragarioides*. Flowers yellow. This species is also found in Siberia.—Of this genus there is but another species indigenous to the Straits of Magellan.

347. DRYAS. *L.* (Mountain Avens.)

Calix inferior, simple, 8-cleft. *Petals* 8. *Seeds* many, caudate, plumose. *Receptacle* depressed.

Low and suffruticose alpine plants, partly cespitose; leaves alternate undivided, margin entire or serrated, under side white and tomentose; stipules adnate to the petiole; peduncles solitary, 1-flowered; flowers white.

SPECIES. 1. D. *octopetala*. 2. *integrifolia*. (D. *tenella*, PH.) On the White Hills of New Hampshire.

A genus of 2 species, common to the northern parts of Europe and America.

348. GEUM. *L.* (Avens.)

Calix 10-cleft, inferior, segments alternately smaller. *Petals* 5. *Seeds* awned, awn naked or bearded, mostly geniculate.

Herbaceous plants mostly producing pinnately divided alternate leaves, with the terminal segment usually larger, stipules adnate to the petiole; peduncles terminal or axillary few-flowered.

SPECIES. 1. G. *strictum*. 2. *agrimonoides*. PH. 3. *album*. 4. *virginianum*. 5. *geniculatum*. 6. *rivale*. 7. *ciliatum*. PH. 8. *radiatum*. 9. *Peckii*. PH. Radical leaves reniform. Is this plant indeed a *Geum?* 10. *Anemonoides*. Also indigenous to Kamtschatka as well as No. 8. 11. *tri-*

florum. Ph. Obs. Stem mostly 3-flowered, producing about 2 pair of small leaves, which are connate at the base, having large divaricate and adnate stipules; peduncles elongated, bracteolate; calix subcampanulate, smaller segments longest, petals white, subovate; awns of the seed straight, conspicuously villous, twice as long as the calix. Hab. Around Fort Mandan on the Missouri. A remarkable species, allied to G. *Anemonoides*, but having pilose leaves and a villous stem and calix.

A North American genus, of which there are also 6 species in Europe, 1 in Japan, 1 in Barbary, 2 at the Straits of Magellan, and 2 equally indigenous to Kamtschatka and North America.

349. POTENTILLA. *L.* (Cinquefoil.)

Calix 10-cleft, inferior, spreading, 5 of the segments alternately smaller. *Petals* 5. *Seeds* mostly rugose, roundish, naked, attached to a small juiceless receptacle.

A numerous genus of herbaceous plants (only 2 species shrubby,) with pinnate, digitate or ternately divided leaves; petioles alated towards the base by the adnate stipules; flowers often corymbosely fasciculated and terminal, yellow, rarely white.

Species. 1. P. *tridentata.* 2. *emarginata.* Ph. 3. *nivea.* 4. *villosa.* Pallas. 5. *hirsuta.* 6. *norwegica.*

7. *recta?* Leaves all in sevens, digitate, villous beneath; leaflets cuneate-oblong, semipinnatifid, obtuse; stipules subovate; stem erect, many-flowered, panicle divaricate; flowers subfastigiate; petals roundish, yellow. Hab. In depressed situations, on the plains of the Missouri near Fort Mandan. Flowering in May or June. 8. *pumila.* 9. *canadensis.* 10. *simplex.* 11. *opaca.* 12. *dissecta.* 13. *argentea.* From Canada to the state of New-York.

14. * *humifusa.* Leaves digitate, quinate, leaflets cuneate-oblong, obtuse, incisely dentate, beneath white and tomentose; flower-stems short and filiform, procumbent, not creeping. Hab. On high gravelly hills near Fort Mandan, Missouri. Flowering about April or May. Obs. Root subcespitose not creeping; leaves all radical, deep green and pubescent above, white and tomentose beneath; flowering stems 4 or 5 inches long, filiform, flagellate, without leaves, producing a few yellow? flowers but no roots.

15. *fruticosa.* 16. *Anserina.* 17. *pensylvanica.* In Canada, and on the plains of the Missouri. 18. *supina.*

A genus of near 60 species, almost exclusively indigenous to the northern regions of Europe, America, and

Asia (Siberia.) Are there no species in the southern hemisphere?

350. COMARUM. *L.* (Marsh Cinquefoil.)

Calix inferior, 10-cleft, 5 of the segments alternately smaller. *Petals* 5, smaller than the calix. *Seeds* even, attached to an ovate spongy persistent receptacle, not becoming a berry.

A marsh plant; with pseudopinnated leaves, stipules growing to the petioles, and sheathing the stem; peduncles few-flowered, axillary and terminal. Flowers brownish, leaves glaucous beneath.

Species. 1. C. *palustre.* In nearly all the western states and territories as far as Louisiana.—A genus of but a single species, common to the whole nothern hemisphere.

351. FRAGARIA. *L.* (Strawberry.)

Calix inferior, 10-cleft, 5 of the segments alternately smaller. *Petals* 5. *Receptacle* of the seed ovate and deciduous becoming a berry. *Seeds* even.

Creeping herbaceous plants, often sending out filiform radicant stems in all directions which diminish the quantity of flowers and fruit; leaves ternate, very rarely digitate, by cultivation sometimes simple; stipules adnate to the petiole; flowers often terminally corymbose, sometimes dioicous; receptacle esculent.

Species. 1. F. *vesca. v. v.* In the state of Ohio near Lake Erie. 2. *virginiana.* 3. *canadensis.*

A small but very widely dispersed genus, of which there are 3 species in Europe, 1 in Surinam, 1 in Chili, and 1 at Buenos Ayres, in South America, a yellow flowered species has also been recently introduced from India.

352. CALYCANTHUS. *L.* (Carolina All-spice.)

Calix urceolate, the lower part entire, upper part multifid, squarrose, leaflets colored, petaloid. *Corolla* none. *Styles* many. *Seeds* many, naked, smooth and cartilaginous, included in the enlarged ventricose and succulent calix.

Odoriferous and spicy shrubs with opposite and very entire leaves destitute of stipules, having the upper surface scabrous with minute aculei, the under smooth, glaucous or villous; younger branches more or less quadrangular, flowers terminal, solitary, petaloid segments disposed nearly in 2 series, brownish, the interior ones often staminiferous, and the innermost filaments sometimes without anthers.

SPECIES. 1. C. *floridus*. OBS. Leaves variable, broad oval, or oval-oblong, acute; villous on the under side; the wood and particularly the root strongly camphorated, so as to be calculated probably to produce that drug as abundantly as *Laurus camphora*. Flowers at first dark brown, becoming paler, in drying parting entirely with this color and becoming olive green, agreeably scented, almost like ripe apples, similar to all the other North American species. Anthers and filaments minutely pubescent, the former glanduliferous at the summit, interior filaments without anthers. Seeds brown, nearly as large as horsebeans, naked, smooth and shining, about 16 in each utriculus, of a roundish oblong form, marked with a longitudinal suture and a central hilum; shell hard and cartilaginous; perisperm none, or a small central portion gelatinizing when moistened; radicle descendant; cotyledones convolute, white and large, of an oleaginous bitter taste. Capsule turbinate, as large as a small pear, marked with the vestiges of the calycine laciniæ, at length becoming perfectly dry with the seeds loose, but never opening.

Z. Collins Esq. informs me that by cutting off the terminal leaf-buds, after the usual season, a succession of flowers may be obtained throughout the summer, every leaf-bud so extracted being constantly succeeded by 2 flowers. For 4 years Z. Collins has been a witness to the success of this experiment, showing in this genus the very intimate union which subsists betwixt the leaves and singularly confluent flowers. From the rarity of fruit in the Calycanthi, even in their native mountains, we may almost assert, that this genus, notwithstanding the consimilarity of its flowers, is in fact polygamous.

2. *glaucus*. On the declivities of bushy hills and the margins of small streams near Lincolnton, (N. Carol.) &c. *β*. * *oblongifolius*, leaves oblong-lanceolate, acuminate, under side smooth and glaucous. HAB. In the mountains of North Carolina, a permanent variety, having elongated leaves. 3. *lævigatus*. Leaves scabrous above, green and smooth beneath.

A North American genus with the exception of *C. præcox* of Japan.

END OF VOL. I.

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